THE JOURNAL
OF
Foreign Medical Science
AND
LITERATURE.

VOL. II. APRIL, 1822. No. 6.

Selected Papers.

SKETCHES OF THE MEDICAL SCHOOL OF VIENNA.

(*Continued from p.* 20.)

"Id quidem infinitum est in hac Urbe."
Cicero, de Finibus, Lib. v.

THE SURGICAL CLINIC.

THE chair of this clinic is filled by Professor Vincenz Kern, who gives daily lectures upon the Practice of Surgery, in the operation-room adjoining to the wards. This clinic, indeed, owes its origin to Professor Kern, and has existed only since 1806. The number of male patients admitted is eight, and of females six. They are usually chosen from among the patients of the hospital who are admitted gratuitously; but when important operations are about to be undergone, it frequently happens that patients who pay, prefer passing into this clinic.

The clinic is public to every one who leaves his name with the Professor. The students of surgery of the second year are obliged to attend, and to undertake the care of patients, as the students of medicine do in the clinic for internal diseases. From sixty to eighty students follow the clinical visit, but the operations are much more numerously attended. The visit is at ten o'clock every morning.

With this clinic is connected a particular institution, or *Pflanzschule*, as it is styled, for the education of surgical operators. Professor Kern has the liberty of selecting six individuals from among his pupils. These he instructs privately for two years, exercising them especially in the various operations of surgery upon the dead subject; after which they are permitted publicly to operate upon the living. Professor Kern, indeed, leaves almost all the operations upon the clinical pa-

tients, except lithotomy, to be performed by his pupils, while he himself takes his place as their assistant. The pupils who are selected for this purpose are not in every case students of surgery, but are sometimes graduates in medicine, whose peculiar talents and inclination lead them to the practice of surgery. They live in the hospital, and receive from the Emperor a yearly stipend, in consideration of which they are afterwards obliged to serve the state for a certain period. In general they are speedily promoted to be surgeons of hospitals, regimental surgeons, or professors of surgery in some of the Lyceums.

An extremely useful society exists, among the students who frequent the surgical clinic, for the promotion of professional information. They already possess a well-selected library, to the use of which foreigners can be admitted; and the various medical and surgical journals of Germany are regularly circulated among the members.

Professor Kern is distinguished by his extreme attachment to simplicity in his surgical instruments, and methods of operating. His lithotome is a short and thick knife, of a very simple and almost uncouth form. The simplicity of his external treatment of surgical diseases is still more remarkable. His school may well be called the School of Nature; for he trusts almost as little to art as did *Maistre* Doublet, the contemporary of Ambrose Paré, of whom Brantôme tells us—"Et toutes ses cures faisoit le dit Doublet par du simple linge blanc et belle eau simple, venant de la fontaine on du puits." Professor Kern has banished from his practice almost all the common applications, such as ointments, plasters, lotions, charpie, and even bandages; and has substituted in their place the application of water, and a simple covering of linen. This plan of treatment he follows even with his private patients; and it certainly shows no small firmness, to humour the prejudices of the public so little, as never to prescribe a plaster or a salve.

In amputation, Professor Kern makes use of iced water, which he applies by means of a sponge to the surface of the stump, as soon as the large vessels are tied. This application, so far from being painful, appears to give relief. The edges are then brought together by adhesive straps. The stump is covered with a large flat sponge, dipped in cold water, and wrung between the fingers; and this is continued for forty-eight hours. In some cases, this application is changed for a folded piece of linen moistened with warm water, and applied over the adhesive straps. The same mode of treatment is followed with all wounds after operation. The edges are brought together by adhesive straps, and then water is applied. No ointment, no charpie, no bandage is employed. The success of Professor Kern in his operations is very great.

The extreme simplicity of Professor Kern's practice is a subject which never fails to excite the attention of those strangers who visit his clinic. The cases under treatment are seen to be going on well; and the success was acknowledged by all with whom we conversed, to be extraordinary. Yet the use of water, as almost the only external remedy, is a practice which by no means meets with a favourable reception. We found few even of Professor Kern's pupils, who advocated this practice; many seemed to think it unworthy of serious examination, and to feel as if such a simplification of surgery were a degradation of the art; others blamed the practice with much asperity, yet without daring to deny the success with which they saw it attended.

Those who address Professor Kern upon the subject, he refers to the patients before them; or, if he enter into any defence of his opinions and practice, it is nearly in the following manner:—

"At the commencement of my surgical practice, I had a patient brought to me with a large ulcer on the leg, which had resisted all kinds of ointments and plasters. I told the man to lie in bed, to remain at rest, and to give up all applications, except a poultice. In three weeks the ulcer was closed. This, and many similar facts, have convinced me of the bad effects of the usual treatment, and led me to the use of a more simple plan of cure. I employ water as an indifferent matter, to cover a surface which is deprived of its natural isolater, the external skin, and to protect that surface from injurious influences. The warmth acts favourably upon the circumference of the sore, as well as upon the sore itself. Ointments and plasters, on the other hand, are irritating and prejudicial substances, when brought into contact with an uncovered surface, naturally unaccustomed to any such foreign impression.

"Even as wounds of bones, for instance fractures, are healed without any external application, so may all wounds of the soft parts be cured. The cure of wounds is the work of nature. Even gangrenous, venereal, and scrofulous ulcers require only a proper internal treatment, and the use of external warmth applied by means of water. Cold, again, applied by means of a sponge to recent wounds, lessens in the most effectual manner the organic reaction, diminishes pain, moderates suppuration, and prevents nervous affections. Bandages may be dispensed with, except in a very few instances. The journals of this clinic are open to your inspection."

A farther account of Professor Kern's opinions may be found in his "Annalen der chirurgischen Klinik," 2 vols. 1809: and in his treatise "Ueber die Absetzung der Glieder. Wien, 1814."

THE OPHTHALMOLOGICAL CLINIC.

It is necessary accurately to distinguish those practitioners who have of late years applied themselves in Germany to the diseases of the eye, from the class who are termed oculists, whether of that or of any other country. The latter would wish to divide surgery into a number of trades, of which they would monopolize one. The former have not confined themselves to the eye, but all of them have come prepared to the study of that organ by an intimate acquaintance with medical science in general, and many of them have distinguished themselves by their labours in anatomy, and their improvements in the practice of surgery; as for instance, Richter, Schmidt, Barth, and Prochaska. These men have not regarded eye diseases as local merely. They have rendered eye-operations less frequent, by their rational and constitutional treatment of those affections which give rise, under mere local and empirical management, to the morbid changes of the eye which afterwards call for the interference of the operator.

Vienna is at present the most celebrated school for the surgery of the eye, in Germany. Professor Barth, who is by birth a Maltese, and still lives in Vienna, as emeritus-professor of anatomy, was the first public teacher in this branch of surgery in Austria. He is but little known by his writings on this subject, not having published any thing upon the diseases of the eye, with which we are acquainted, excepting a small tract, in which he describes a manner of performing extraction of the cataract without an assistant. He has many pupils, however, who still speak of his lessons with respect; and the present professor of Practical Ophthalmology was, for a considerable number of years, his assistant. By the late Johann Adam Schmidt, the fame of Vienna as a school for the diseases of the eye, was much increased. He did not belong to the general hospital nor to the university, but to the Josephine academy. He is well known by his ophthalmological as well as by his other writings, and especially by his treatises upon the diseases of the Lachrymal Organs, and upon the inflammation of the Iris. He wrote a considerable part of the ophthalmological "Bibliothek" of Himly; and it were to be wished that some of his countrymen would treat his memory with somewhat more respect, and acknowledge what they have borrowed from his valuable communications to that journal.*

---

* Soemmerring, in his work upon the Diseases of the Bladder, speaks of Professor Schmidt's "Commentarius de Nervis Lumbalibus Anatomico-pathologicus," in terms of the highest praise. That work was published at Vienna, in 1794.

Dr. George Joseph Beer has been for more than thirty years employed in the practice of this department of surgery. He was for many years extraordinary professor only, but in the year 1815, a chair of Practical Ophthalmology was founded in the university, which has since been filled by this learned and enthusiastic man. The name of Professor Beer is already known in England. He is a voluminous writer, but all his works are upon the subject of his favourite study.

The clinic for the diseases of the eye has undergone various improvements within the last ten years. It has existed in its present situation in the general hospital, and with its present arrangements, since November, 1816. This clinic consists of an auditorium, and of two wards, on the second floor of the hospital. The auditorium is well lighted, and neatly coloured in green. The windows are so supplied with shutters and curtains, that the light can be in an instant increased or diminished. A large eastern window supplies the light admitted during operations. Besides seats for 150 students, this room contains a cathedra of an oval form, raised about a foot and a half from the floor, and surrounded by an iron balustrade. From this the lectures are delivered, and it is used also for the operations, being large enough to contain a patient, along with the professor, the assistant, and the *ordinarius*, or pupil to whose care the patient is intrusted. A collection of instruments and bandages, both for the use of the clinic, and for the illustration of the history of ophthalmology; a collection of anatomical and pathological preparations of the eye; and a library of printed books, manuscripts and drawings, illustrative of the structure and diseases of that organ; are contained in the auditorium. The dust of neglect is not allowed to gather on any of these collections. They are on the contrary yearly-increasing. The library is open to the students. The auditorium is adorned by a bust of the present Emperor, on the pedestal of which is the following inscription:

FRANCISCI. PRIMI. AUGUSTI.
PATRIS. PATRIÆ.
INSTITUTI. HUIUS. OPHTHALMOLOGICI.
FUNDATORIS.
PIÆ. AC. GRATÆ.
ET. MEDICORUM. ET. ÆGROTORUM.
VENERATIONI.
SOLEMNITER. POSITUM.
MDCCCXVI.

Portraits also are hung up in the auditorium of Baron Protomedicus Von Stift, the Director of Medical Study in the Austrian dominions; and of the following distinguished surgeons—Scarpa, Richter, Schmidt, Barth, and Prochaska.

Each ward is about the same size as the auditorium, is also coloured green, and contains twelve beds. The wards are separated from the auditorium by two small rooms appropriated to the use of the nurses. In the middle of each ward is a long table, upon which is placed a small crucifix, and which serves both as a dining table for the patients, and also for laying out the bandages, instruments, and medicines, made use of at the visit. The windows are supplied with shutters and curtains. Each bed has three such substitutes for curtains as we have already described at page 12. The wards are furnished with every thing necessary both for the strictness of clinical instruction, and for the peculiar care of patients affected with diseases of the eye. A salaried assistant, residing in the hospital, is also attached to this clinic.

The instructions delivered in this institution, which, as in the other clinics, are continued uninterruptedly for ten months, are given in the following order. The lectures on Practical Ophthalmology are delivered every morning, Saturdays and Sundays excepted, from ten to eleven o'clock, in the German language. The lectures commence with a very complete account of the anatomy and physiology of the eye, in which constant reference is made to the morbid changes to which the various textures of that organ are liable. The dissections of the eye and of the neighbouring parts, which are made for this part of the course, are very numerous, and are executed with great care, chiefly by Professor Beer himself. Students can readily procure admission when these dissections are preparing, and thus have an opportunity of becoming more intimately acquainted with the practical anatomy of the eye, and with some peculiarities in Professor Beer's manner of demonstrating that organ. Under the anatomy of the eye, Professor Beer includes the osteology of the orbit, and the demonstration of the muscles, blood-vessels, nerves, and all other parts connected with the organ of vision. He borrows frequent illustrations from the comparative anatomy of the eye; and possesses a finer collection of original drawings in this particular department than is perhaps in the hands of any other anatomist. To this part of the course, which lasts about two months, follow a few lectures upon the manner in which the diseased eye ought to be examined. The next and principal part of the course continues for nearly six months, and is occupied with the pathology of the eye, and the medical and surgical treatment of its diseases. The whole concludes with a history of ophthalmology from the most ancient times to the present, and a critical review of the most celebrated works in this science.

Daily, from eleven to twelve, Saturdays and Sundays included, the strictly practical instructions are given, partly at the bed-sides of the patients who have been admitted into the cli-

nic, and partly in the review of the ambulatory or out-patients. The plan followed by Professor Beer is to bring every new and interesting patient, whether he be afterwards to remain in the clinic, or to be an out-patient only, into the auditorium, and to place him in the cathedra. Any one of the students may now offer himself to be the *ordinarius* or *candidatus assistens* for this patient, and entering the cathedra, may examine the symptoms, pronounce a diagnosis and prognosis, and propose a plan of treatment. All this is done under the correction of Professor Beer, whose earnest desire to communicate instruction in these practical exercises merits the most unequivocal applause. It is here perhaps that Professor Beer most distinguishes himself. We do not mean to lessen his fame as an eye-operator, already so widely, and so well established, but we must confess that it was ever as a diagnostician that he appeared to us to rise beyond all rivalship. It is not merely the patients upon whom operations are about to be performed, or whose cure is in any other way to be attempted, who are thus publicly examined. We account as one of the most profitable parts of our studies at Vienna, the examinations of many diseases of the eye which were wholly incurable. It is by thus studying the morbid anatomy of the eye upon the living subject, that one becomes able to distinguish the cases which are proper for operation, from those in which manual interference can never be serviceable, and is often injurious.

The semestral examinations of Professor Beer consist in this kind of practical exercises, and for this purpose the most important cases are selected from the clinic and from among the out-patients. These examinations, the general nature of which we have explained at page 4, thus become a means of discovering the real and practical knowledge of the candidates, and are useful and interesting even to the hearers. They are very unlike most academical exercises, which are seldom more than wearisome proofs of the strength or weakness of a candidate's memory, and but very insufficient tests of ability and information. These exercises are conducted at the desire of the student in German or in Latin.

The strictly clinical part is conducted with the same exactitude as in the clinic for internal diseases. The cases are written with equal minuteness, and upon the same plan, except that Professor Beer places the prognosis before the treatment. They are composed in German or in Latin, and some of them in the latter language, which were read during our attendance on the clinic, justly merited the eulogium of being written, as far as the nature of the subject would permit, in a Ciceronian style.

The number of students who attended this clinic for the last three years was as follows:—

1814–15,	111.	Of these	65 were not Austrians.
1815–16,	170.	.....	92 .....
1816–17,	199.	.....	104 .....

The number of patients and of operations during the same period was as follows:—

	In-Patients.	Out-Patients.	Patients operated upon.	Patients operated upon for cataract.
1814–15, ..	96	114	92	60
1815–16, ..	106	158	78	57
1816–17, ..	115	180	96	59

From these numbers some idea may be formed of the opportunities afforded in this clinic, of studying the diseases of the eye, and of witnessing the operations which are performed upon that organ. We need scarcely say, that the number of inflammatory diseases of the eye is very considerable. There are indeed several causes which render eye-diseases extremely common in Vienna. We refer particularly to the excessive quantity of dust with which the streets, and above all those of the suburbs, are covered; and to the use of new wine of very inferior quality by the common people. The former is a fruitful cause of different kinds of ophthalmia; and to the latter must in a great measure be attributed the frequency of cataract and of amaurosis, as well as of gout. The last mentioned is one of the most common diseases occurring in the hospitals of Vienna, and it is found to extend itself under various forms to the eye.

If the diseases of those who present themselves as out-patients are of such a nature as to be aggravated or protracted by their coming and returning daily, they are immediately admitted either into the clinic or into the general hospital.

We have already taken notice, at page 4, of the method of instruction by what are called *privatissma*. Those of Professor Beer are extremely valuable. He gives a short course of the operative surgery of the eye, repeats the different operations, and explains as he goes along, every step and minutia in their performance, and then directs the pupil in the repetition of each of them upon the dead subject. After attending one of these private courses, the pupil is allowed to operate upon the living subject. Upwards of thirty heads are employed in a course.

Daily, at three o'clock in the afternoon, Professor Beer gives advice to the poor in his own house, and to this house-clinic, as it is called, students are admitted. Many of the less severe diseases of the eye may here be observed, which are not so frequently seen at the hospital; and the student finds in Professor Beer a friend ever ready to explain, and to assist him in the examination of the cases.

The fee for the clinic is twenty-five paper guldens yearly, for the house-clinic a ducat, for a *privatissmum* eighty paper

guldens, and for each operation upon the living subject four ducats. For Dr. Rosas's *privatissmum*, twenty-five paper guldens. For each head for operations, one paper gulden.*

We have forborne entering upon the consideration of Professor Beer's opinions and practice, as these will come before us in a review of the work which he has lately published, under the title of "Leitfaden."

THE LYING-IN HOSPITAL.

The *Gebaerhaus* or Lying-in Hospital was established by the Emperor Joseph II. in the year 1784, partly with the view of preventing child-murder. In the course of the first year after it was opened, 748 children were born in this hospital. It forms part of the *Allgemeine Krankenhaus*, and is under the same management; but is separated in some measure from the other buildings of the hospital by a small court. Besides the entrance by the great gate of the general hospital, there is a private door which is used by those who would go in unobserved.

This establishment is divided into two sections. The one is for those women who pay; to the other admission is gratuitous. The former is committed to the superintendance of Dr. Pelan, and is not open to students. The latter constitutes the Clinical School of Midwifery, and is under the care of Professor Boër.

THE PRIVATE LYING-IN HOSPITAL.

The Private Lying-in Hospital consists of two divisions. The one contains twelve rooms on the ground floor, which are set apart for secret deliveries, and the greater number of which are occupied each by a single patient. The other division contains six rooms, each of from four to six beds. In the first division, if the room is not occupied for a complete day, six paper guldens are paid. If the person continues longer, she pays daily a gulden and a half; for which she has board, lodging, medical attendance, nursing, and the baptism of her child. If she gives over her child to the foundling-house, she pays forty guldens. Besides the accoucheur, midwife, and nurse, no person is allowed to enter her room. In the second division, there are indeed several beds in each apartment, yet there is such an arrangement, that those who have been, are separated from those who are to be delivered. A person who does not remain in this division during an entire day, pays four guldens and a half. If she remains longer, she pays daily half a gulden. Also here, none but the necessary attendants are admitted. If a woman

* A paper gulden is equal to nine pence—a ducat equal to half a guinea.

of this division would give her child into the foundling-house, she pays twenty guldens.

This section of the lying-in hospital was intended by the imperial patriot as an asylum for those who might wish to conceal their pregnancy; and here those individuals find that they are safe from discovery. Even the tribunals are obliged, if it be brought as a corroborative ground of accusation against a woman that she had resided in the lying-in hospital, to reject the evidence to that effect as not valid. On entering the hospital, the woman is not required to tell her real name or condition, much less to declare who is the father of her child. She is required merely to bring along with her a sealed letter containing her real name, that in case of her death information may be communicated to her relations. As soon as the number of her room and bed is written upon the letter, it is returned into her own keeping. She can enter the hospital and leave it in disguise, or even masked; and indeed continue so during her whole residence, if she choose it. If she bring a nurse along with her, she need not expose herself even to the nurses of the hospital. She can leave the hospital immediately after her child is born, or remain for some time. She can leave her child, or remove it. Many make use of this institution only during labour, leave it some hours after their delivery, and give up their child to the foundling-house.

The rooms of this section are neither so spacious nor so clean as those belonging to the section for the poor, but are more crowded. Notwithstanding, they contain fewer sick in proportion to the number they accommodate, and fewer die in this section. This must be attributed in some measure to the greater degree of warmth, and to the avoidance of draughts of air in small rooms, in which particulars these are much preferable to spacious and airy wards, especially for lying-in women.

The average number of births in this section of the lying-in hospital, has been for some years past from 800 to 1000 annually, being about a third fewer than in the clinical school. From 1st January, to 23d December, 1814, there were 875 births, 700 of which took place in the first division. In the year 1816, the number of births was 895. We suspect that in a considerable proportion of these births, the children are legitimate. In the twenty-four hours, there are on an average from two to three births. Three midwifes assist at the labours, and the accoucheur is called in only in difficult cases. Very few operations take place in this section.

THE OBSTETRICAL CLINIC.

The chair of Clinical Midwifery is filled by Professor Lucas Johann Boër. The section of the lying-in hospital, containing

all those women who are admitted gratuitously, along with almost all those who enter on the lowest rate of two-pence halfpenny daily, is committed to his care. Every woman admitted gratuitously must assist in the household-work of the hospital, and afterwards serve for a certain time as nurse in the foundling-hospital. The number of births in this section is 1200 annually. The proportion of unmarried women delivered, is to that of the whole number delivered, as 47 to 50.

This section of the lying-in hospital is frequently styled the *Schola Obstetricia;* and it is here alone that students are admitted to the practical study of midwifery. Indeed it is chiefly in this school that midwifery is at all studied, at least by foreigners, at Vienna; for Professor Boër's lectures in the university are for midwives rather than male students, and the lectures of Professor Schmidt in the Josephine academy interfere with the clinical visit of Professor Boër.

Professor Boër visits his clinic morning and evening. The morning visit is from nine to ten, and is so far public that foreign students, who apply to Professor Boër, are permitted to attend gratis, and to be present at the deliveries which happen between these hours. Those who follow this visit meet in the delivery-ward, and then attend the Professor through the wards containing the women who have been delivered. Two wards for this class of patients are constantly in use, each of fourteen beds. A third was formerly kept for the purpose of emptying either of the others at pleasure; but when we were at Vienna, all the three were occupied.

Into one of these wards, those who are about to be delivered are brought as soon as their labour-pains commence, and there they remain until the os uteri has dilated. They then pass into the delivery-ward, which is situated between the two large wards for women who have been delivered. The floors of all these apartments are covered along the sides of the beds with broad pieces of dark coloured cloth, which are continued also between the wards. This prevents those who have been delivered from stepping out of bed upon a cold floor, and hides any blood which may fall from the woman in labour, as she passes into the delivery-ward.

The delivery-ward contains four beds, which are surrounded by the kind of moveable curtains formerly described. No delivery-chair is employed by Professor Boër, but the bed is arranged to answer the purpose of a delivery-chair, by means of ten bags of straw, each three feet long, and from a foot to a foot and a half thick. These are laid above the straw mattress of the bed, and serve to raise the head and back of the patient. Over all are laid a woollen coverlet and a sheet, and a coverlet of the same kind is laid over the woman.

From considering the manner in which the child passes in natural labour into the pelvis, Professor Boër is led to insist particularly upon the woman's laying herself upon her left side during the first stages of delivery. As the head approaches to the inferior opening of the pelvis, she is directed by Professor Boër to place herself upon her back, and to keep her knees moderately bent. When the labour does not promise to be very easy, there is stuck into an opening on each side of the bedstead a curved piece of strong wood, which the patient lays firm hold of with her hands, in order to be able to employ greater force in contracting the expulsive muscles. These pieces of wood are removed as soon as delivery has been accomplished. It is evident, we think, that they are disadvantageously placed, and that if any such point of support is to be used, it ought to be situated before and not laterally. The midwife or pupil, who assists, stands or sits upon the right side of the patient, and with the right hand covered with a smeared handkerchief, the points of the fingers being directed over the anus, supports the perineum. Soon after delivery, the straw cushions are gradually withdrawn from under the patient, so that she is brought to the horizontal position. She continues in the same bed for three hours, during which time she is attended by one of the female pupils, who, lest hæmorrhagy should come on unobserved, is ordered not to allow the patient to fall asleep. After the expiration of the three hours, the woman walks slowly into one of the wards for those who have been delivered. Her child is given to her very soon after she is laid in bed. Professor Boër insists upon this, in consequence of some peculiar ideas which he entertains respecting the origin of the diseases of new-born children.

The assistant and the midwife live in the hospital, and are present at all deliveries. The Professor does not live in the hospital, and is called only in difficult cases. There are ten male students, and as many female pupils, to whose care the patients are particularly intrusted, before and after delivery, as well as during the time of labour. Six of these students are styled *Intra-Pratikants*, and the remaining four, *Extra-Pratikants*. All the ten female pupils are *Intra-Pratikants*, and reside in the *Gebaerhaus* itself. The six students who are *Intra-Pratikants* reside in other parts of the hospital. The four *Extra-Pratikants* are not Austrians. The appointment of *Pratikant* is given by the Professor, and no money is taken for it openly. The *Pratikants* are the only persons called upon to be present at operations. A male and female *Intra-Pratikant* daily take the office of journalists, whose duty it is to examine all women applying for admission, to be present at all deliveries which take place within the course of the twenty-four hours,

and to enter into a book the names of the patients who are admitted into the clinic, and of those who are delivered during that day, but without any history of the cases. The appointment of *Pratikants* continues for two months.

The wards for women who had been delivered appeared to us always extremely clean, well aired, and quiet. The great degree of quietness, in a ward containing twelve or fourteen children, was a circumstance, indeed, which excited the attention of all visiters. The delivery-ward was less orderly, and when we considered that it served, most improperly, as a parlour for the assembled students before the visit, it could not be expected to be otherwise.

Children's beds are scarcely ever employed in the clinic. The children are laid by their mother's side. Swaddling, a barbarity almost unknown in England, but which holds its ground in many parts of the Continent of Europe, is not permitted. No purgative is given immediately after birth. After a few hours the breast is given, the mother continuing in the reclining posture. Many of the mothers, indeed, refuse to give the breast to their children, knowing that in not many hours, they are to be sent to the foundling-house. In a year after, scarcely any of these children, who are now so kindly nestled in the bosom of their mothers, are alive.

Small as the rate of two-pence halfpenny a-day is, it is surprising how early after delivery the patients leave the hospital, in order to save this expense. We have been assured that frequently on the second day, and sometimes even the next day after delivery, they give up their child to the foundling-house, and return home. The greater number leave the hospital at the end of a week. Very few remain two weeks.

For several weeks past Professor Boër has given no clinical lectures. Neither is there any regular system of instruction in the practice of midwifery followed in the clinical school, nor is there any demonstration of the obstetrical instruments, nor any exercising upon the phantom or machine, under the immediate direction of Professor Boër. The principal part of the instruction to be gained at this clinic, must be gathered from his occasional remarks and conversational examinations. His assistant, indeed, gives *privatissma*, both to male and female pupils, at ten or fifteen paper guldens.

Professor Boër is a pupil and a partisan of the English school of midwifery. His forceps are nearly those of Dr. Hamilton; but he almost scoffs at instruments, and like Dr. William Hunter, sums up his advice for difficult cases, in the word—patience. He says plainly that midwifery is better understood in England than in any other country. Little, therefore, is to be learned in the clinic of Professor Boër of the artificial part

of midwifery; while the best opportunity is afforded of estimating the value of the *ars obstetricia per expectationem.* To a treatise which Professor Boër has published, he has given the title of "Elementa Medicinæ Obstetriciæ Naturalis." This work is distinguished for the classic taste with which it is written.

With regard to the position of the head in natural labour, Professor Boër describes the occiput as looking forwards and the face backwards, in opposition to those who assert that the occiput is turned towards the sinistro-anterior side of the pelvis. He blames severely the phrase axis of the pelvis, saying, that though a curved line of direction may be described, the axis of a bent cylinder is nonsense. With the English, and in opposition to the French and especially to the Dutch, he believes neither in the natural enlargement of the pelvis during pregnancy or in labour, nor in the possibility of artificial enlargement by division of the cartilage of the symphisis, or the possibility of sufficient separation of the ossa innominata from one another, without dangerous laceration in their articulations with the sacrum. When there appears to be no disproportion between the head of the child and the cavity of the pelvis, and no symptom particularly urging the acceleration of the labour, such as convulsions or hæmorrhagy, he considers a face-presentation as natural. He allows the labour to go on for a whole day without turning, or perhaps leaves the case entirely to nature. Scarcely two cases in eighty such presentations, has he found to require the employment of the forceps. Similar practice is followed in foot and breech-presentations. Has the body of the child been torn away by some unskilful operator, and the head left in the uterus, or has a portion of the placenta been left, and has the uterus closed; Professor Boër believes that nothing is to be done, so long as the os uteri continues in that state.

The medical treatment of the women who have been delivered in the clinic, is in general so extremely simple, that Professor Boër is wont to say, that they cure every thing there with beer-soup, and require neither great learning nor dear drugs. The number of puerperal diseases which do occur is very small. This is probably owing in a considerable measure to a regulation, which is strictly followed, that no woman shall be left twenty-four hours after delivery, without having a clyster given her, if her bowels have not been opened. In puerperal fever, Professor Boër is a friend neither to blood-letting, nor to strong saline purgatives; but trusts, as in many other cases, more to nature than to art, ordering little more than some powders of ipecacuan in the commencement, clysters, some spoonfuls of tincture of rhubarb, a little of Dover's powder, and emollient

cataplasms to the abdomen. In the pain of the inferior extremities after delivery, with or without œdema, Professor Boër has derived great advantage from a blister applied like a garter under the knee. He maintains that abscesses of the mamma are never to be opened with the knife, but are to be treated with poultices till they open of themselves, after which neither lint nor ointment is to be applied. The cause of such abscesses, he considers to be the want of timely putting the child to the breast and of regular sucking. To sore nipples, he applies cloths dipped in warm water, and orders the child to be continued at the breast, its saliva being the best remedy.

As soon as Professor Boër sees aphthæ in a child, he concludes that it has had tea, sugar, or syrup, or that it has used a sucking-cloth. Any such foreign irritation, acting upon the tender mouth of the child, causes aphthæ. In the clinic, as the children get nothing but their mothers' milk, aphthæ are exceedingly rare, whereas that disease is extremely common in the foundling-house. In the ophthalmia of new-born children, Professor Boër rejects all collyria, as irritating and likely to increase the inflammation. He rejects also the washing of the eyes with milk, as it is apt to be sour. He places by the bed of the mother two cups of cold spring-water. In the one she dips a bit of linen, and in the other washes out the bit which she has removed. These are frequently applied over the eyelids. Under this treatment the inflammation diminishes, the eyelids are prevented from adhering together, and the purulent discharge is said to be averted.

Those who wish to become further acquainted with the opinions of Professor Boër, we must refer to the work of which we have already given the title, and of which a new edition in the German language has lately appeared, in two volumes. It is sincerely to be lamented, that this justly admired teacher should have had to complain of the bad faith of some of his pupils. "Qua quidem sinceritate non propter verba et sententias litigamus, sed facta vindicamus; et cum labore exquisita; et inventa; et communicata; et monstrata; vigiles noctes et incertos dies; tot omissa lucra ex privatis; tot conata; tot experimenta et pericula; et ipsos morbos. Inde aliqua passim morositas nobis, ne tamen ex animo, sed a crebra irritatione, et vieta aliquando patientia."

THE MUSEUM OF MORBID ANATOMY.

This Museum is attached to the clinic for internal diseases; and there is no part of the School of Vienna, which more strongly marks the sincere wish of the Austrian government to render the system of medical education complete. A prosector, who acts also as *Anatomicus Forensis*, is appointed to examine with

care the dead bodies of those who die in the hospital, and to preserve such parts as may prove useful pathological preparations. He lives within the walls of the hospital; and receives such a salary as may prevent him from withdrawing his attention from this office towards other pursuits. The museum consists of upwards of six hundred valuable preparations, the greater number of which are preserved in alcohol. A *catalogue raisonné* has been published by Dr. Biermayer, the present prosector, in which 586 of the preparations are described, under the title of "Musæum Anatomico-Pathologicum Nosocomii Universalis Vindobonensis, 1816."

We visited this museum in company with Professor Joseph Frank, of Wilna, and experienced the most polite attentions from Dr. Biermayer. The following are some of the preparations which we noted as remarkable:

1. Congenital elephantiasis, syphilis, and variola, in different subjects.
2. Lobulus Spigellii, included in an umbilical hernia.
3. Ulcer of the pericardium.
4. Skull of a woman, 23 years of age, blind from amaurosis for seventen years. The skull half an inch thick, the sutures abolished, and the diploe so compact that the skull weighs twenty-nine ounces, being seventeen ounces above the ordinary weight.
5. A vomica of the liver opening into the cavity of the thorax.
6. The stomach opening through the parietes of the abdomen in the epigastrium.
7. A semiuterus, with one tube and one ovary, taken from a woman who had four children.
8. A pin covered with calculous incrustation, found in one of the posas muscles.

THE FOUNDLING HOSPITAL.

The Foundling-House is under the same direction as the General Hospital; but stands on the opposite side of the street, and has its own physician, surgeon, and overseer. Of late years it has been much improved by the care of government, and the exertions of a society of the ladies of the Austrian nobility.*

---

* This is called the Society of Noble Women for the Promotion of the Good and Useful. In 1814, the following were among the applications of their funds:

	Guldens.
Care of Foundlings, and Premiums to Nurses,	9871
Institution for the Instruction of the Deaf and Dumb,	2492
Institution for the Instruction of the Blind,	3349
Care of Patients with Diseases of the Eye,	3806
Support of poor lying-in Women,	1250

All attempts to rear the children in the hospital itself had failed. In the most favourable years, only 30 children out of the 100 lived to the age of twelve months. In common years, 20 out of the 100 reached that age, and in bad years not even 10. In 1810, 2583 out of 2789 died. In 1811, 2519 out of 2847 died. Like the cavern of Täygetus, this hospital seemed to open its jaws for the destruction of the deserted and illegitimate progeny of Vienna. The Emperor Joseph II. frequently visited this hospital in person, and upon one occasion he ordered Professor Boër to make a series of experiments with all kinds of food, that it might be ascertained how far diet had its share in the mortality. Twenty children were selected, and fed with various kinds of paps and soups, but in a few months most of them were dead.

In 1813, the government enacted that the foundling-house should serve merely as a depôt for the children, till they could be delivered to the care of nurses in different parts of the country. Already, this plan has in part answered the benevolent intentions of those who supported it, and given credit to the opinion of the Medical Faculty, who, in their report upon this subject, attributed the mortality in the foundling-house, not to the want of care, food, or cleanliness, but to the crowding together of so many children, to the unavoidable deterioration of the atmosphere which hence resulted, to the noise, and to the contagious diseases to which the children were exposed, and especially contagious diarrhœa. This hospital still continues to contain upwards of seventy nurses, and more than twice that number of children. Every nurse has her own bed, and beside it two children's beds. In general, each nurse has her own child committed to her care, and another child.

THE JOSEPHINE ACADEMY.

This academy is situated in the Alster Vorstadt. Considered as a building, it is one of the most splendid edifices in Vienna. The Emperor Joseph II. was the founder of this institution, the object of which is to supply the Austrian army with able physicians and surgeons. On the front of the academy is the following inscription: Munificentia et Auspiciis Imp. Cæs. Josephi II. P. F Schola Medico-chirurgica, militum morbis et vulneribus curandis sanandisque instituta, æde et omni supellectile salutaris artis instructa, Anno R. S. 1785. It was opened with much ceremony upon the 7th of November, 1785, and a gold medal of the weight of 40 ducats was struck upon the occasion. The first director of the academy was Brambilla, the author of the "Instrumentarium Chirurgicum," and other works. To him were intrusted the making of the statutes, and the arrangement of the whole institution.

The Josephine academy is completely separated from all other schools. It is under the direction of the minister of war, out of whose treasury the salaries of the professors and all other expenses are defrayed. The number of pupils admitted is 200, of whom fifty receive a monthly allowance from the academy. Having finished their attendance of two years, to which period of time the course of study extends, they undergo a severe examination, are promoted to the degree of doctor in surgery, and appointed to a regiment. The academy no longer possesses the power of granting the degree of doctor in medicine.

There are five professors and a prosector in the academy. The professors belong to the army, being staff-physicians, and they bear the title of imperial counsellors. The greater number of them reside in the academy. Their lectures are delivered in German. The following is a list of their names.

Field-physician-in-chief, Beinel Von Bienenburg, Director.

Professor and Vice-director, Von Scherer, brother of the Professor in the University—Anatomy and Physiology.

Professor Zimmerman—Chemistry and Botany.

Professor Castellitz—Therapeutics.

Professor Zang—Surgery.

Professor Schmitt—Midwifery. His lectures are attended by male and female pupils.

The pupils of the Josephine academy have abundant opportunities for the practical study of their profession, there being three clinics attached to the institution. The patients are soldiers and soldiers' wives, chosen from the great military hospital, which is situated close to the academy, and is fitted up for 1200 patients.

The Medical Clinic is under the care of Professor Castellitz. The visit is from six to seven in the morning.

The Surgical Clinic is in the hands of Professor Zang, a surgeon of very distinguished merit. The visit is from four to five in the evening. The clinic consists of seventeen beds.

Professor Schmitt has an Obstetrical Clinic, in which from 70 to 80 soldiers' wives are delivered in the course of a year.

To all the lectures and clinics strangers are admitted, who previously leave their names with the several professors, except to the obstetrical clinic, which is particularly designed for the pupils of the academy. The clinic of Professor Zang is much frequented by strangers. Indeed that gentleman is looked upon as one of the first surgeons in Austria. He is at present engaged in a work, two volumes of which have been published, upon operative surgery, which promises to become classical in medical literature.

The library of the academy is rich in books of medicine, surgery, anatomy, botany, and natural history, and is adorned by

a bust of Joseph II. by Ceracchi. It is open only to the professors and pupils of the academy.

The collection of natural history contains specimens from the three kingdoms of nature, but chiefly of such objects as are interesting from their use in materia medica and practical chemistry.

The collection of all kinds of surgical instruments, bandages, and machines, is extremely magnificent.

The anatomical museum is distinguished for its collections of skeletons and diseased bones, and of pathological preparations in wax, but above all for its rich collection of wax preparations illustrative of descriptive anatomy and midwifery. The preparations of this collection were executed in Florence, under the direction of Fontana and Mascagni, and are indeed an exact copy of the collection of the same kind in the Museo di Fisico at Florence. This collection occupies seven apartments. Two apartments upon the second floor contain the preparations illustrative of midwifery. This museum is open every Thursday, and is visited by all classes of the people. The Florentine collection is much admired by the crowd, whom it is well calculated to surprise. Every preparation lies under glass, upon a white silk cushion fringed with gold. The artists have not spared ornament even to the preparations themselves, which are as gay as colours can make them. It is well known that they were executed from drawings, but it may startle our readers a little to hear, that a series of engravings, taken from these preparations, is now publishing at a great expense in Vienna. Privatissma are also given by the prosector of the academy, in which these preparations are demonstrated. We never could look at the collections of wax preparations in the Museo di Fisico at Florence, and in the Josephine academy of Vienna, without acknowledging them to be excellently suited for teaching anatomy to grand dukes and emperors, or for affording an hour's amusement to any honest citizen whatever, curious perhaps in such matters. That they are of any considerable utility to professional students of anatomy, is by no means so evident.

The Josephine academy is furnished with a botanical garden.

The academy has a perpetual director and secretary; perpetual members or professors; actual members, or physicians and surgeons; foreign honorary members; and corresponding members.

THE CABINET OF INTESTINAL WORMS.

This is a part of the Imperial Museum of Natural History, but is under the particular direction of Dr. Bremser, and forms of itself an object of considerable interest, from the great number of specimens which it contains, and from the pains which

have been taken to arrange the whole, and even to display the individual specimens. Dr. Bremser practises as a physician in Vienna; he is at the same time a zealous cultivator of natural history, and is perfectly enthusiastic in this particular pursuit, to which his office as conservator of this cabinet directs his attention. He has dissected no fewer than fifty thousand animals, with the sole view of detecting the various species of worms, which sojourn in their intestines and in other parts of their bodies. All the animals which die in the menagerie at Schoenbrunn are delivered to Dr. Bremser for this purpose, and no expense is spared to procure dead animals of rarity, including foreign birds and fishes.

The method taken by Dr. Bremser to detect the smallest worms is extremely precise, and often astonishingly successful. He slits up the intestines, and carefully collects their contents, which he sets aside for examination. Having carefully gone over the internal surface of the intestines which he had emptied, he proceeds to examine the contents in small quantities mixed with water, and poured into a flat glass saucer, the bottom of which is japanned black, surveying each quantity in succession through a microscope. The same kind of saucers he also employs to display the smaller worms, which being mostly white, are rendered extremely evident by the black ground on which they are thus placed.

The preparations are arranged with much order and neatness. We see each species of worm taken from a complete series of animals, beginning with man, and passing through the different genera of quadrupeds, birds, and fishes. When we visited the cabinet with Dr. Sprengel junior, Dr. Bremser showed us also drawings of most of the species, both of the natural size and magnified. They are executed with great beauty upon a black ground. Some of them have been already engraved, and will appear in a work upon intestinal worms, which Dr. Bremser is preparing for publication.

Dr. Bremser is one of those who doubt the accidental introduction of the eggs of worms into the body, and compare their origin to that of the infusoria. In the cure of tænia, Dr. Bremser is not friendly to drastic purges. He holds the filix mas to be more powerful against the tænia lata than against the tænia solium. One of his favourite remedies is that of Chabert: namely, three parts of oleum terebinthinæ and one of oleum cornu cervi fœtidum, or oleum animale empyreumaticum, which having been left together for several days, are to be distilled, and three-fourths drawn off for use. One or two tea-spoonfuls are to be given morning and evening. Four ounces are usually sufficient for the expulsion of a tape-worm. Dr. Bremser observes, however, that sometimes on the day following the

first dose of this remedy a portion of the worm is discharged, but afterwards no considerable part of it is seen in the excrements, although the symptoms of the disease have entirely ceased. In this case the dead worm undergoes the same changes as any dead animal matter introduced into the stomach; it is dissolved and digested.

THE INSTITUTION FOR SICK CHILDREN.

This institution owes its origin to Dr. Mastalier, a celebrated and benevolent physician of Vienna. It is at present under the care of Dr. Goelis, at whose house in the Wollzeil Street, the visit is daily held from three to five o'clock in the afternoon. Students who previously intimate their wishes to Dr. Goelis, are permitted to attend, and have thus an opportunity of seeing the diseases of children treated with much skill and attention. The average number of patients is 500 monthly.

Dr. Goelis has undertaken the publication of a series of monographies upon the different diseases of children, to which diseases his practice is nearly confined. The vast opportunities of observation, the care in conducting this institution, and the numerous dissections of those children who die, lead us to hope much valuable information from these works, the first volume of which we have already received.

Description of an Instrument for counteracting Morbid Contractions of the Flexor Muscles of the Leg. By W. GAITSKELL, Rotherhithe.

(From the London Medical Repository, for August, 1821.)

I have transmitted the sketch of an instrument found highly useful in counteracting morbid contractions of the flexor muscles of the leg, the sequel of chronic inflammation of the knee-joint and its appendages.

The outline was copied from an instrument in possession of one of my apprentices, who was lame, and recovered the full use of his leg by the aid of it, after wearing a high-heeled shoe for four years. It was recommended to him by an empirick, who received twenty guineas for the cure, and completed it in twelve months.

I have tried this instrument, and found it answer my expectation. The following is a narrative of one of the cases:

A delicate boy, about six years of age, was attacked with a scrofulous inflammation of the left knee-joint, which terminated in suppuration, with symptoms of hectic fever. He was so emaciated, as to appear a perfect skeleton. In this state, being a patient in one of the hospitals, amputation was proposed; but,

his mother refusing her consent, he was brought home, and placed under my care, without the smallest hope of recovery.

After twelve months severe suffering from several abscesses, discharging at numerous apertures, he finally recovered, but with such a contraction of the flexor muscles of the leg, as to draw it considerably backward. When standing erect, the foot rested on his toe. The medical treatment consisted of hemlock fomentations, linseed-meal poultices, bark, and soda, with pure air, and nutritious diet.

Should the instrument prove as useful to others, as those I have advised to make trial of it, I shall feel thankful to the inventor, and happy in making it known to the public.

Explanation of the Plate.

A. A steel bow, with a joint in the centre, C, which advances to, or recedes from the steel bow, B, by a small screw, C, aided by a female nut. The male screw is pinned into the joint, and works through a perforation in the bow, B, which the nut regulates.

B. A steel bow without a joint, fixed on the projection of steel, D, at the lower end of A, and grooved above, to move on a similar projection at the upper end, D.

D. Two projections of iron.

E. A concave thin plate of elastic iron, lined on the concave side by thin leather, stuffed with wool, and on the convex with dog-skin, and rivetted firmly to A.

F. A similar plate with letter E, and made of the same materials. E embraces the calf of the leg, and F the hamstrings, which become two fixed points, and are separated or brought nearer, in proportion as A is straightened or curved.

G. A broad thin iron plate, elastic, and lined inside and out with leather, fixed into A, the joint C being its centre. This goes to the posterior side of the joint, and is hollow behind the hamstrings, while the broad leather, H comes over the patella and sides of the knee, with three straps perforated to buckle on G.

H. The broad flap.

I I I. The straps.

One hole of the strap is to be taken up every third day, which extends the joint gradually. It is only to be worn in the day-time. At night, the space between the calf of the leg and the back part of the thigh, is to be filled with a convex piece of wood, or cork, adapted to the parts, and confined on with some yards of tape, or bandage, to preserve the extension which the instrument may have gained in the day-time.

Observations on the Use of the different Preparations of Iodine as a Remedy for Bronchocele, and in the Treatment of Scrofula. By Sir A. HALLIDAY, M. D., Domestic Physician to His Royal Highness the Duke of Clarence, &c., St. James's Palace.

(From the London Medical Repository, for September, 1821.)

In the course of the last year Dr. Coindet of Geneva, a physician of great practice and distinguished reputation, first directed the attention of the Faculty to the very extraordinary powers of *iodine*, in the treatment of bronchocele, the goître of Switzerland. Having prescribed it with success in a number of cases, he communicated the result of his practice to the Helvetic Natural History Society, in a short paper which was read before that body on the 25th of July, 1820, and afterwards published in their transactions.

Though bronchocele is by no means a disease of such frequent occurrence in this country as in some of the Swiss Cantons, it is still of sufficient importance to attract attention; and as it was natural to suppose that a remedy possessing such wonderful powers in this complaint might be employed in the discussion of other tumours of an indolent and local nature, which are produced in scrofulous habits, and are but too common among all classes of society, in every corner of the British dominions, it has been tried by several British Physicians in the latter complaint. Burnt sponge has long been one of our best remedies in the treatment of scrofula; and as *iodine* forms a constituent part of that preparation, there is now reason to conclude that it was the only portion of the sponge that acted specifically in this disease. This, so far as my experience goes, is abundantly confirmed by the good effects of the iodine presented in a more simple form; and in the few cases in which I have had an opportunity of prescribing it, either for the discussion of scrofulous tumours, or in counteracting the constitutional disease, I have never failed in effecting a perfect cure, or producing considerable amendment. I am, therefore, anxious that this medicine should be brought into more general use, and its apparently wonderful anti-scrofulous powers fairly put to the test.

Iodine itself is an alkaline substance, inducing a local inflammatory, or rather corrosive action. It is little soluble in water; but alcohol in proportion to its strength will dissolve from one-ninth to one-sixth of its own weight of this salt. It has, therefore, been exhibited in tincture, and to remove all doubt as to the strength of the preparation prescribed, Dr. Coindet directs 48 grains of iodine to be dissolved in an ounce of spirits of wine, of the strength of 35°. Of this tincture he gave, at first, ten

minims three times a day, increasing the dose, after the first week, to fifteen and sometimes to twenty minims, in half a wine-glassful of capillaire and water. The Doctor very rarely exceeded the latter dose. He remarks, that in the course of a week or ten days from the commencement of this treatment, the integuments became less tender to the touch, and the tumour began to soften. The softness gradually increased, while the tumour or tumours became more circumscribed and distinctly marked, and at last disappeared altogether. It was found, however, that from inattention, or other circumstances, disagreeable symptoms now and then occurred; and these having been magnified, some degree of prejudice was raised against the use of the remedy; but as these symptoms proceeded from an abuse, and not from a proper and cautious use of this powerful medicine, they ought not to be taken into account by the regular physician. Dr. Coindet, in a second paper, published lately in the "Bibliothèque Universelle," has fairly met the question, and shown the absurdity of the alarm which has been excited. The symptoms, which he enumerates as *iodynic*, are an acceleration of the pulse, palpitation, frequent dry cough, with sudden wasting and prostration of strength, while the appetite is voracious and craving. These symptoms disappear as soon as the medicine is discontinued, or are easily removed by the use of milk diet, tonics, and anti-spasmodics. But without producing any of these symptoms, it has been ascertained that, in many cases, the stomach would not bear the simple tincture; Dr. Coindet, therefore, made experiments with other preparations of the *iodine*. He found that the salt was very powerful in decomposing the aqueous solution of the alkalies; and that when *iodine* was added to the solution of caustic potass, the water was decomposed, and a portion, uniting with the oxygen, formed an *iodate*, while another portion, uniting with the hydrogen, formed a *hydriodate* of potass, and that these neutral salts possessed none of the corrosive qualities of the iodine, while they retained all its virtues as a remedy for the cure of *goitre*. The preparation which he has, therefore, used latterly, is the hydriodate. The iodate he has not yet tried. He has not found that the hydriodate has produced any of those disagreeable symptoms attributed to the use of the tincture; and on this account alone he considers it preferable. I have ordered the tincture with success in three cases of scrofulous tumours, and have heard of its being prescribed by a friend in two remarkable cases at Edinburgh; but since the appearance of Dr. Coindet's second memoir, I have preferred the hydriodate more particularly, as it has been discovered that the crystals of hydriodate, made into an ointment, and rubbed in like the unguentum hydrargyri, produce even a more rapid cure than

when the medicine is taken internally. In local and indolent tumours I would always prefer the ointment; but in the treatment of the constitutional disease, or where scrofulous sores exist, it must be given internally; and in such cases, the physician ought to begin with ten or twelve minims of the saturated solution of the hydriodate three times a day. The only difficulty I have met with is in ascertaining the strength of the hydriodate in a liquid form. I am not, as yet, aware of any just criterion to go by. The ointment I have ordered is made of the crystals of hydriodate, evaporated to dryness, (taking care that the alkali is well saturated,) half a dram to an ounce of hogs' lard, and about the size of a filbert of this ointment to be rubbed in upon the tumour morning and evening. After eight days, the action usually begins to take place. I have found great difficulty in procuring the *iodine* here, and still more the hydriodate of potass, though the latter is easily prepared when the iodine is to be had. I wish they would begin to make it at Apothecaries' Hall, because I am confident it will be found to be a remedy of some importance. The iodate, that is, the salt formed by the combination of iodine with oxygen, is easily crystallized, and little soluble in water, while the hydriodate can scarcely be kept from deliquescing; there is, consequently, little difficulty in separating the one from the other, when they are formed by the addition of iodine to the liquor potassæ, which takes place, as already stated, by the decomposition of the water of solution. I hope these remarks will draw the attention of some of the readers of the Repository to the subject, and induce them to make trial of a remedy which promises to be as powerful in eradicating scrofula as ever mercury was in curing syphilis.

On the Effect of Mechanical Compression of the Head, as a Preventive and Cure in certain Cases of Hydrocephalus. By Sir G. Blane, Bart. M.D. F.R.S. Physician to the King.

(From the London Medical and Physical Journal, for October, 1821.)

In reflecting on the circumstances which characterize the history and description of hydrocephalus, some of the chief of which are, that it is very seldom met with but in very early life, and most commonly in infancy before the bregma is closed, —that there is in most cases a preternatural size of the head,— and that it is usually attended with a rachitic state of the bones and a general scrofulous flaccidity of the soft parts, and runs in particular families,—it occurred to me that the distention of the head and bregma is owing to a want of firmness and due resistance in the bony compages of the skull, which consequently yields to that effort of pressure with which the brain in its

growth acts on its parietes. In reasoning further on the subject, it appeared to me conformable to some of the most approved principles of physiology, that, as there is a certain degree of tension and pressure necessary to the sound condition and action of parts, the withdrawing of this, by inviting afflux and congestion, produces serous effusion; and, for the like reason, there may be a deficiency of that interstitial absorption upon which the healthy state of this and all other parts of the living frame depends.

It was reflections of this kind, whether well or ill-founded, which some time ago suggested to me, that mechanical compression of the head might be of use in the cure of hydrocephalus, and which induced me to make trial of it in a case which occurred to me about four months ago. A child, aged thirteen months, had a head of a preternatural size almost from birth, and the bregma was preternaturally large. The conformation of the child was otherwise defective; for there was a visible curvature of the spine, indicating a rachitic diathesis. He had for several months been subject to drowsiness; and latterly it was evident, from his screaming, and from raising his hand to his head, that there were occasional paroxysms of headach. There had also been for some time past a dilatation of the pupils. The functions of the bowels were not so much disordered as is generally the case in this disease, which was still in an unformed state.

I directed the head to be swathed with a roller, as tight as could be done without producing pain or uneasiness. The only other remedies were three leeches, applied once only to the temples and forehead, and a purge every two days of rhubarb and sulphate of potash: mercury was not used in any form. An immediate amendment took place, which continued so that all complaint was removed in less than three months, except the curvature of the spine; and he has continued well till now, that is, for eighteen months.

The only other case which has since occurred in my practice has been one which did not offer so fair a field for the trial. The subject was a child of three years of age, with a head preternaturally large, and the bregma not yet closed. No symptoms of hydrocephalus had appeared, but only a state of general delicacy. The swathing has apparently been of benefit, and may probably prevent a disorder naturally to be expected from such a conformation.

Before sitting down to write this, thinking it likely that a view of the subject seemingly so simple and obvious might have occurred to others, and deeming it possible that similar trials might have been made, and the practice exploded from being found unsuccessful, I consulted all the works I could meet with, but without finding any intimation of the theory or treatment

here described. I therefore feel it my duty, even at this early period of my experience, to suggest the trial of it to others. I have elsewhere remarked, (Medico-Chir. Trans.) that one of the great purposes of the general and early diffusion of the valuable information contained in periodical works, is to offer suggestions of this nature, in order that they may undergo either a speedy confirmation or refutation, the experience of one individual being too limited to afford that satisfactory induction which medical truth demands, or too protracted for the decision of questions which, for the good of mankind, ought to be as prompt as possible.

It is necessary to caution practitioners against a too active use of this method in recent and acute cases, where there is inflammatory affection, and therefore such a degree of tenderness as may make compression painful and prejudicial. Common discretion will suggest the times, circumstances, and degrees, in which this practice is admissible.

I would by no means rest the expediency of making further trials of this on the theoretical views which suggested it, but wish to refer entirely to experience. I am aware, indeed, that the theoretical views of others, being adverse to those which I have advanced, may produce a reluctance on the part of some practitioners to pay attention to what is here recommended. The cause of this disease has been referred by some to a depraved state of digestion, indicated by a distended abdomen and a vitiated state of the feculent matter, indicating a depraved action of the intestines, mesentery, and other chylopoietic viscera. But such disorders occur in innumerable instances without producing hydrocephalus; though it is easily conceivable how such a state of bowels may exasperate this disease, as well as all others of a rachitic or scrofulous nature, by producing depraved assimilation and scanty nutrition.

Other theorists are fond of representing hydrocephalus as proceeding, in most instances, from an inflammatory affection of the brain. There can be no doubt of such affection frequently taking place here; but I believe there are few instances of the acute state of hydrocephalus coming on without a predisposition, consisting in an enlarged head and bregma: and it has been plausibly maintained by some, that a relaxed state of vessels in particular parts is the main cause of inflammation. At all events, as it is found to run in families, this is a clear proof that it is a disease proceeding from a particular constitution, and not depending on accidental causes. One of the cases here related, having strong symptoms of predisposition, which were successfully combatted, strongly proves and illustrates this, and affords a useful practical hint to parents and medical attendants. I knew a family of the highest rank and respecta-

bility, who lost the whole of their young family by this disease, and died some years ago without heirs of their own body to their titles and estates. Some of these children would probably have been saved, had the preventive measures here stated been then known.

But, leaving all theoretical discussions out of the question, it is the author's purpose merely to submit what he has said as a suggestion to others who may be induced to make trial of it, and report the result to the public.

He has only further to suggest, that in case the utility of this practice should be confirmed by farther experience, it ought to be resorted to as a *preventive* as well as *curative* treatment, and applied whenever infants are perceived to have the head and bregma preternaturally large, without waiting its alarming manifestation by symptoms of hydrocephalus,—symptoms which, by this measure, may be happily averted.

P. S.—Since this article was first drawn up, (fourteen months ago) several cases have occurred to myself and some of my friends, greatly in proof of the practice recommended; which, it ought to be understood, is not applicable to the acute state of the disorder, but either to those indications of predisposition consisting in a large head, a tardy closing of the bregma, broad pupils, and rachitic diathesis, or to cases in which the acute stage has been vanquished by evacuations and mercury, and where there is still a prospect of a fatal result, or of a protracted or imperfect cure. Both the subjects, whose cases have been detailed, have remained free from the disease, now eighteen months.

An Account of the Opening of an Egyptian Mummy. By the Editor.

(From the London Medical and Physical Journal, for October, 1821.)

The mummy, the appearances of which I am about to detail, proved to be that of a female, and was presented to me by Sir Archibald Edmonston, Bart. who had purchased it at Thebes, in March, 1819. It came out of one of the numerous catacombs in a perforated rock, and was found in an ornamented case made of sycamore wood, covered with painted hieroglyphics.

I proceeded to open it on the 29th of August last, in the presence of several friends, among whom were two medical gentlemen, Dr. Hutchinson and Mr. Alexander Copland Hutchison, who kindly assisted me in the operation.

It is not my purpose, on the present occasion, to enter into an antiquarian discussion on the subject of mummies, as they have been found in Egypt: such a course would be foreign to

the object of this Journal; and it would, moreover, be presumptuous in me to advance any conjecture after the very full and satisfactory investigation of the subject, for which we are indebted to two very recent writers, M. Jomard and Baron Larrey. In the third and fourth volumes of the *Commentationes Societatis Regiæ Gottingensis*, the reader will also find much curious matter on the subject of Egyptian mummies, by Professor Hayne, as far as regards their antiquity; and by J. F. Gmelin, on the score of their physical properties.

An elaborate article, under the head *Momie*, will also be found in the *Dictionnaire des Sciences Medicales*, where the writer endeavours, by philologically scrutinizing the name "mummy" to ascertain its derivation: some authors, according to him, pretending that the name is derived from two Cophtic words, signifying *salt* and *death;* while others trace it to the monosyllable *mum*, the representative for *wax*. The probability, however, is, that the name mummy, in Latin, *mumia*, was given to the dry preparations in question, from the circumstance of the principal ingredient, originally employed in preserving them, being called *mummi-aï*, a species of mineral pitch, or *petroleum*, (not the *pisasphaltus*,) found in Arabia. It distils from fissures in rocks, is of a bright-yellowish colour, and of the greatest purity. Its scarcity renders it extremely dear, so that it is often sold at a very high price; and Sir Gore Ouseley, whose practical knowledge of Oriental customs and language is very extensive, informs me that the reigning Schah of Persia made him a present of a small quantity of this precious bitumen in a golden box, as an object to which he attached a great value.

A practice, therefore, which we may suppose to have been confined, in the first instance, to the first classes of citizens in Egypt, as a funeral luxury, to which the lower orders of people could not aspire, from the excessive costliness of the materials, may at last have descended to them when common bitumens and resins were ascertained to answer the purpose of preserving bodies from putrefaction fully as well as the more precious *mummi-aï*. Hence the practice became general; and to that circumstance may we ascribe the large number of preparations of that kind found at Thebes, and in the immense catacombs of Saqqârah in Lower Egypt.

My only object, in giving the description of another mummy on the present occasion, is to dwell on a few points connected with one or two questions of professional importance.

The first relates to the art of bandaging different parts of the human body, as displayed in the best sort of Egyptian mummies. That which I opened was acknowledged, by the medical gentlemen present, to offer a model of the art in question, scarcely equalled, and certainly not to be surpassed by the most

dexterous of our modern surgeons. To judge of the model before us, not only must the art of applying bandages be of very ancient origin, (since the mummy itself is, from accurate calculation, upwards of three thousand years old,) but it would appear that no improvement of any importance has been made in that art in subsequent ages. In the progress of unfolding the various bands by which the body of the mummy, the head, the arms, and lower extremities, in the present instance, were encircled, we recognised almost every species of bandage described in books of surgery, very neatly and artfully employed. The *circular*, the *spiral*, the *uniting*, the *retaining*, the *expellent*, and the *creeping*, were each in succession discovered in some part of the body. The *couvrechef* was not forgotten, nor the simple split-cloth, or *linteum scissum*, and the *capistrum*. But by far the neatest application of all was that of the common roller to the legs and arms, with the appropriate use of compresses to fill up hollows and depressions in the limbs. The turns laid over one another by just one half of the breadth of the bandage, and not a single reverse or *renversée*, which modern surgeons deem indispensable to the even application of this useful bandage, occurred in any part of it; yet were the parts as smooth as possible, without a wrinkle or any appearance of slackness from the varying form of the limb. There is another remark I wish to make on this subject, respecting the materials employed for swathing the mummy. The principal rollers appeared to be made of a very compact, yet elastic linen, some of them of great length, (from four to five yards,) without any seam or a single stitch appearing in any part of them. Other lesser bandages, and particularly the square envelops of the abdomen, thorax, and head, are of cotton, and of a less elastic texture. The observation, therefore, of some recent writers, that the employment of cotton is a more recent method, is not correct. The square cloths, in the present instance, were found to alternate with the complete swathing of the whole body. They occurred four distinct times; while the bandaging, with rollers and split linen, &c. was repeated at least twenty times; the five superior or external layers being so contrived that the shape, form, and position of the limbs, lie completely concealed, and the mummy presents a homogeneous mass, with the outline, thus—

I caused the whole of the materials employed in these different sort of bandages to be weighed, and found them to be

twenty-eight pounds avoirdupois. The whole of the linen employed seemed highly impregnated with the same bituminous matter with which the body itself was embalmed; and, from some experiments made since, I judge it to have been steeped in a strong solution of tannin. This is a curious fact, which, I imagine, has not yet been noticed.

Having removed, after a very laborious operation of upwards of an hour, the "outward trappings" of the mummy, the next points connected with questions of a professional nature, for us to consider, was the sex of the individual, its state of integrity, and the mode in which the viscera had been removed.—A detail of each of these points I must defer till the next number, as they involve matter of too much interest to admit of being briefly considered within the short space which the present number affords me for that purpose.—A. B. G.

Case of Poisoning by Arsenic, successfully treated. By Jos. Hume, Esq.

(From the London Medical and Physical Journal, for November, 1821.)

The following instance of speedy recovery from the effects of arsenic will, I trust, fully exemplify the favourable opinion I have already given of the probable advantages to be derived from the use of *carbonate of magnesia*, and my predilection for this earth as an antidote. This opinion, together with many valuable remarks by the author, connected with the detection of arsenic, will be found in Mr. Marshall's "Remarks on Arsenic," published about four years ago.

It was with reluctance I undertook the charge of this patient: I had, indeed, refused the application, recommending that it should be made to a professional gentleman whom I named; for, although originally destined, and in a great degree prepared, for the practice of medicine and surgery, I have long confined my attention principally to practical and scientific chemistry and pharmacy. After this apology, I now proceed with a very brief detail of the case; my avocations at present preventing my stating all that might be said upon the subject.

On the 18th of July last, M. N., a young married woman, about twenty years of age, in consequence of some violent altercation with her husband, a fruiterer, and she being then in a state of inebriety, immediately set about the means of self-destruction, by purchasing some arsenic at a neighbouring druggist's shop, pretending that it was for cleaning brass.

By subsequent information, I found that the arsenic was taken after supper, and at a late hour, being near midnight; that she had eaten rather heartily of cold fried sheep's liver; had taken neither bread nor any liquid with that meal; and that she swal-

lowed the arsenic very soon after, having mixed it in a wine-glass with a little water, and "stirring it well up with a tea-spoon," as she informed me.

About eight o'clock on the following morning, the mother of this poor woman came to my house, and, in the most urgent and impressive manner, implored me to accompany her instantly to see her dying daughter, who had taken poison; at the same time presenting me with the paper containing the remainder of the arsenic. This parcel I, of course, retained in my possession, for the purpose of examination and analysis, in case an authorized inquiry by a jury should be necessary. As the distance was short, and as the wretched mother seemed most unwilling to lose time, as she expressed it, by sending for other assistance, I immediately attended her to her daughter's lodging; but with no expectation of success, as, without any nice examination of the powder, I soon discovered its nature, and the mother had informed me of the quantity which her daughter had taken.

On entering the room, I found the miserable victim suffering under the most excruciating agonies, attended with constant efforts to vomit or retchings, although it appeared that she had, in the early part of the morning, vomited once or twice rather copiously. The pulse was extremely rapid, and rather unequal; it was, however, above 120. In the commencement of such accidents, the pulse is, probably, not to be relied on as an indication; for, particularly on this occasion, the patient suffered much from mental as well as bodily agitation; seemed fully sensible of her danger, and, I am confident, repented most sincerely of the rashness of her conduct. She complained of the well-known signs attending an over-dose of arsenic; such as acute and fixed pain in and about the gastric region; a sensation of burning heat in the throat and fauces; and, in short, to use a convenient expression, she was labouring under all the symptoms peculiar to the arsenical virus.

I quickly returned home, requesting the mother to accompany me for the sake of despatch, and prescribed the following mixture:—

℞. Magnesia carbonatis, ℥j.
Aquæ distillatæ, ℥xv.
Vini opii, ʒjss.
Spiritus lavand. comp. ʒiij.
Sacchari albi, ℥ss. M.

Capiat ægra cochlearia duo magna frequenter, phialâ assiduè agitatâ.

Besides a written label on the bottle, I instructed the mother to give a dose of the mixture every ten minutes, while the

symptoms continued violent; but, should there be any material remission, then to exhibit the medicine every quarter of an hour or twenty minutes, according to circumstances.

So slight were my expectations of saving this unfortunate woman, that I did not think it requisite to visit her again. I had, indeed, informed the mother, as well as the unhappy husband, who blamed himself as having been the cause of his wife's situation, that I considered it a hopeless case. My attention now was rather occupied in preparing such evidence as might be satisfactory to a coroner's jury, than forming any plan for the treatment of the patient; but another visit from the mother checked this career. She informed me that her daughter "had *again* been taken very ill," and begged I would see her immediately. This message convinced me there had been a remission of the symptoms, and that the same remedy ought to be continued; I therefore, not having it in my power at that time to visit the patient, desired that the daughter should persevere with the same medicine; observing to her, that I could prescribe nothing more efficacious. This was assented to, and the same mixture was repeated, omitting half a drachm of the vinum opii, the patient having been disposed to drowsiness by the first proportion.

I am unwilling to delay what I consider to be the chief object of my letter,—the mode of applying *magnesia;* but, having other circumstances to add, which may be important, and, I hope, acceptable to the readers of your valuable Journal, and my time being at present too much engaged in professional pursuits to permit me to proceed any farther on this subject, I shall only say, that the patient herself waited on me, I believe, on the fifth day after, and that, in less than ten days, she was perfectly recovered. It is proper to mention, that oleum ricini and other (what I shall call) *occasional* remedies, were also employed in this case.

Long-Acre; Oct. 11*th*, 1821.

Selected Reviews.

1. *Mémoires sur L'Asphyxie, considerée dans les Batraciens; par M. Edwards, Docteur en Médicine.* (*Lu à l'Academie des Sciences le* 25 *Août*, 1817.) A Paris. 1817.
2. *Second Memoire sur l'Asphyxie, par M. Edwards, Docteur en Médicine.* (*Lu le* 1 *Juin*, 1818.)

(From the Quarterly Journal of Foreign Medicine and Surgery.)

The author of these memoirs is probably known to those of our countrymen who have visited Paris, as one of the most zealous and scientific cultivators of our profession in that capital. Although his labours of late years have been exclusively devoted to the country in which he resides, we are proud to claim him as our countryman, and in that character we feel ourselves called upon to acknowledge the uniform kindness and polite attention which the English are in the habit of receiving from him.

We feel no little pleasure in introducing these memoirs to our readers: they appear to us extremely important, in a physiological point of view, and no less interesting in the talent for observation and skill in experiment which they display. As the author is still engaged in the prosecution of his subject, we shall strictly confine ourselves to an analytical review of these memoirs, reserving our own remarks and observations to the period when the facts are all in the possession of our readers.

Dr. Edwards has been for some time engaged in researches into the nature of Asphyxia in cold-blooded animals, preparatory to the consideration of that subject in man.

The phenomena which cold-blooded animals present are so extraordinary, that, at first view, they do not seem to be governed by the same principles which regulate the functions of other animals. A closer observation of nature, however, will always satisfy us of the uniformity of her laws. The nature of Asphyxia in warm-blooded animals has been frequently the subject of experiment, but the phenomena which cold-blooded animals exhibit under similar circumstances, have seldom been made the subject of particular inquiry, although such an investigation must be confessed to be highly important, as tending to elucidate the nature of that state in man. It was with this view that Dr. Edwards undertook the present researches. He selected for this purpose the Batracian reptiles; the order comprehending frogs, toads, and salamanders. The less intimate dependence subsisting between the principal functions of these animals, enables us to observe, with greater facility, their mu-

tual relations, as well as the operation of those external agents which influence their life.

Before entering on the immediate study of Asphyxia, it will be of importance to know if the *medium* in which it takes place exerts any action except that by the lungs. The singular modifications of life in reptiles, afford the means of determining this. They possess the wonderful property of retaining life, and the free use of sense and voluntary motion, after the excision of the heart, and, consequently, after the suspension of the functions of circulation and respiration; after this there only exists the united action of the nervous and muscular systems. It was on animals reduced to this state of simplicity of function, that the experiments which form the subject of the first memoir were performed.

The media, whose influence it is of chief importance to appreciate, are air and water. By observing the difference in the duration of life, after the excision of the heart in these two fluids, their respective influence upon the nervous and muscular systems, independent of circulation and respiration, will be ascertained.

The first experiment performed by Dr. Edwards, with this view, was on salamanders. He cut out the hearts of four crested salamanders (S. Triton), two of which were exposed to the air, and two were put under an inverted jar, into water deprived of its air by ebullition. In both circumstances, the animals continued very lively for some time; their activity at length gradually diminished, though in different degrees. At the end of four hours, the salamanders which were in the water appeared to be dead, but manifested some signs of life on being pinched or agitated. One died at the end of eight, and the other at the end of nine hours. Those on the other hand, which were in the air, lived for twenty-four and twenty-six hours. This difference was confirmed by a repetition of the experiment upon these animals, and on frogs and toads. Six frogs, from which the heart had been removed, were placed in water, and an equal number in air. After the operation they leaped about with wonderful agility. Those in the water lived four hours, whilst those in the air lived an hour longer.

It is evident, from these experiments, that air is better fitted for supporting the action of the nervous and muscular system in these animals, than water; and that it exerts a vivifying influence on the economy of these animals, independent of respiration and circulation. This fact is rendered still more manifest by a modification of the experiment: if we remove the frog from the water into the air, after it has ceased to exhibit signs of life, it will revive, and set itself in motion; the contrary takes place if the steps of the operation are reversed—proving

not only the more favourable operation of the air, but also the positively deleterious action of water deprived of that fluid, a fact which cannot fail to have important influence on Asphyxia from submersion in animals of a higher order.

Asphyxia is supposed to commence from the moment that the action of the air upon the blood is excluded; the only way in which it differs from the state to which the subjects of the preceding experiments were reduced, is, that to the action of the nervous and muscular systems is added the influence of the circulation of venous or black blood. It will, therefore, be necessary, as the first step in the proper study of Asphyxia, to determine what is the influence of the circulation of venous or black blood. This will be shown by ascertaining the duration of life under the sole influence of the nervous and muscular systems, and comparing it with its duration under the combined influence of this action and that of the circulation of venous blood. The hearts were cut out from six frogs, which were placed under a receiver in water, deprived of its air; an equal number which underwent no operation, were similarly placed. The difference in these two cases was more than twenty hours in favour of the action of the circulation of black blood.

It was also found, as might have been expected, from referring to the first series of experiments, that the circulation of venous blood, when carried on in air, prolonged the action of the nervous and muscular systems to a greater period than when the Asphyxia took place in water. Six frogs were strangled by means of a piece of bladder placed over the head, and tied firmly round the neck with a thread, so as entirely to prevent the passage of the air. The immediate consequence was paralysis, but in a few minutes the animals recovered in some degree their powers. An equal number placed in water died in ten or twelve hours, whereas those that had been strangled lived from one to five days. One of them was so much alive at that period, that he effected his escape from his tormentors. The same results were obtained from experiments on salamanders. One of them was quite lively at the end of eleven days, though the head was then in a state of gangrene.

From this striking difference it would appear, either that these animals can exist for many days without any assistance from the air except its action on the nervous system, or that that fluid acts upon the blood through the medium of the skin.

Spallanzani concluded, that when the skin of animals is in contact with the air, carbonic acid is formed. His experiments, however, were liable to error; for being performed on reptiles whose hearts were cut out, the acid might have been the product of the contact of the air with the blood effused from the wound. Dr. Edwards and M. Chevillot got rid of this source of error,

by operating on frogs and salamanders asphyxiated by strangulation, and obtained the same results as Spallanzani; from which they conclude, that the long time that reptiles are capable of living in air in a state of Asphyxia, is to be ascribed to the action of the air upon the skin.

The nature of this action, and other questions relating to it, are reserved by Dr. Edwards to a future stage of the inquiry, his present object being to determine the influence of black blood, independent of every external agent capable of producing chemical changes, or acting on the nervous system. The way in which this could be accomplished would, perhaps, be to inclose these animals in solid bodies. Experiments of this kind are on record. The famous one of Hérissant is well known. He inclosed three frogs in boxes, which he surrounded with mortar, and deposited in the Academy of Sciences. When the boxes were opened, eighteen months afterwards, in presence of some of the members, one of the frogs was found dead, and the other two alive.

The fact in this instance could not be disputed, but it was attempted to be explained in the same way as the singular reports which gave rise to the experiment. These related to toads which were said to have been found alive, inclosed in old walls, blocks of coals, and even stones, where they had remained excluded from the air for an immense time. In both cases it was supposed that some crevice had escaped notice, which admitted the air, or enabled the animal to get out. Though it is not likely that such a circumstance would have escaped the notice of an accurate observer like Hérissant, it is certain that the circumstances of the experiment are not detailed with sufficient minuteness; on which account Dr. Edwards instituted the following modification of the experiment, in which no air was included with the animals, as appears to have been the case in Hérissant's experiment.

Five wooden boxes, of particular dimensions, were half filled with mortar, upon the surface of which, in each box, he placed a toad, which he covered, and surrounded with mortar, so as to fill the boxes. They were then closed and secured. Five other toads were similarly treated, in circular pasteboard boxes, taking care that no fissure existed. The first five were placed under water, to compare the duration of life in that species of asphyxia, with that in mortar placed in air.

The experiment was made on the 24th of February, 1817, and at midnight of the same day, all the toads which had been immersed in the water were dead. Next day, at four o'clock P. M. one of the circular boxes was opened, and on removing the mortar from the animal, it moved briskly, and began to croak, being sixteen hours after the death of the others. To

ascertain if the animal could exist much longer in this condition, it was replaced in the box, and the mortar applied with the same precautions as in the first instance. And on opening it on the 15th of March following, nineteen days from the commencement of the experiment, he was found quite alive. Results similar, but more striking, were obtained from experiments repeated on salamanders.

The fact established by these experiments, appears to be at variance with one of the indispensable laws of life; the necessity of air for its support. It would even appear that the interment was a means of prolonging their existence, for in several experiments they lived much longer when thus situated, or in sand, than when confined in atmospheric air.

The next step of Dr. Edwards's researches was directed to the explanation of this apparently singular anomaly in the laws of life. It did not seem improbable that air might exist in sand, or penetrate through mortar, but it was extremely unlikely that it could exist in sufficient quantity to support life. But from some simple and decisive experiments which he performed, it was found that the air did actually enter very freely through the mortar, and that animals thus situated, speedily perished if they were surrounded with water, or mercury, so as to intercept the air. Thus what at first appeared a singular exception to the necessity of air for the support of life, became an additional proof of it. It is still, however, necessary to account for the greater prolongation of the life of reptiles, confined in solid bodies than in atmospheric air. This Dr. Edwards attributes to the difference in the loss sustained through transpiration, and evaporation, in these two circumstances. He performed several experiments to show from the greater loss of weight of these animals, when confined in air than when imbedded in sand or mortar, that the transpiration must be greater, and that in these circumstances death must occur sooner, from the greater loss of the fluids, which cannot be repaired.

From this examination of asphyxia, in the family of the Batracian reptiles, as occurring in air, water, and solid bodies, the following are the most important of Dr. Edwards's conclusions:

1. That the air has an influence on the economy of these animals, independent of its action through respiration.

2. That air compared with water, exerts a vivifying influence upon the nervous and muscular systems, while water has a contrary effect.

3. That the blood which has not been acted upon by the air prolongs life in these animals beyond the duration which it would attain under the action of the nervous and muscular systems alone.

4. That these animals, deprived of the action of air upon the

lungs, can exist much longer in that fluid than in water deprived of its air, and that in that case, when only the skin is in contact with the air, carbonic acid is formed.

5. That these animals can exist many days, buried in solid bodies, and that life in that case is supported by the air which penetrates through these bodies.

6. That they exist much longer confined in solid bodies than in air, which is owing to their sustaining a smaller loss by transpiration.

Such are the conclusions to which Dr. Edwards was led by the result of the foregoing experiments. But as in performing these experiments, there are some circumstances which tend to vary the results, it was necessary to appreciate the extent of the influence of these conditions, in order to obtain uniform results in repeating the same researches. The investigation of the causes capable of varying these effects, forms the subject of the Second Memoir, about to be published in the *Annales de Chimie et de Physique.*

In prosecuting this inquiry it was necessary to establish some fixed standard to be referred to, as a term of comparison, in subsequent experiments. With this view Dr. Edwards, in the months of July and September, 1816, performed forty-two experiments on frogs, in order to ascertain how long these animals could exist under water. The mean temperature of the month of July was 59° Fharn. that of September 57° Fharn. The temperature of the water made use of varied from 63° to 59°. The duration of life in these experiments varied from one hour, to two hours and 27 minutes. There was very little difference in the results obtained in these two months, the mean term of existence in July being one hour and 37 minutes, that in September one hour and 45 minutes.

In considering the causes capable of varying the duration of life in frogs immersed in water, the first influence which became the subject of investigation, was *temperature.*

It had been long ago remarked by Spallanzani and others, that frogs submersed in water retained life for a longer period in the winter season, than in summer. But as they have not made this fact the subject of particular investigation, Dr. Edwards undertook to elucidate it still farther, by experiments very similar to those already made, but whose chief object was to estimate the effects of temperature.

Two frogs were submersed in water which had been reduced, by means of ice, from the temperature of 62° to that of 50°. One lived 5 hours and 50 minutes; the other 16 hours and 15 minutes; being double the term of existence in the forty-two preceding experiments. Having then reduced the water to 32° eight frogs were plunged into it, which did not die till the end

of 6 hours, 7 minutes; and 8 hours, 18 minutes; being more than triple the duration obtained in the first experiments, in which the temperature of the water was from 61° to 63°.

The duration of life in frogs immersed in water, being thus the inverse of the temperature, it would be interesting to observe the effects of increasing the temperature from 63°, the standard already adopted. The air being at 68°, four frogs were submersed in water, the temperature of which had been raised to 72°. They only lived 70, and 75 minutes. At the temperature of 90°, three frogs lived only 32, and 12 minutes; and at 108°, these animals suffer what may be termed sudden death, for in general they only live a few seconds.

These very opposite effects, produced by such inconsiderable differences of temperature, are extremely interesting. The circumstance of the temperature of 32° being peculiarly favourable to the existence of life, cannot be owing to the animals being reduced to a state of torpor; for at that temperature, they do not become torpid, as is evident from the movements they perform. The effect of temperature on the quantity of air contained in water, will be particularly examined hereafter. As the temperature of cold-blooded animals is known to differ very little from that of the surrounding medium, and to follow its variations, it may be asked, if the sudden change of temperature to which these animals are subjected, in plunging them into water at an elevated degree, is not the cause of their death, rather than the high temperature itself. If this supposition were correct, however, it ought to follow, that equally sudden transitions in the descending scale, should be equally injurious to life in these animals. The reverse of this, however, holds true. This circumstance therefore cannot satisfactorily account for the pernicious effect of the elevated temperature, but as connected with the influence of habit, it may tend to modify the results. Other considerations present themselves in the course of the investigation, as contributing to account for these effects; such as the influence of climate, the mode of living, the action of the air contained in the water, and its relations to the temperature, the effect of habit in relation to temperature, and the influence of the seasons of the year; each of which must exert peculiar and reciprocal actions. In order to be able to appreciate the relative influence of these different conditions, one of them only must be varied, whilst the other circumstances of the experiment are continued the same. In this manner, the effect of temperature has already been considered; and it is by proceeding in the same way, that the influence of additional causes is to be ascertained.

Amongst those conditions alluded to, the seasons, from their influence on the animal economy, merit particular attention. By

repeating the preceding experiments at different times of the year, we shall be enabled to estimate what influence they exert.

It will be recollected, that in the months of July and September, frogs lived from 1 hour to 2 hours and 27 minutes under water of the temperature of 59° and 63°. In order to determine how long they could live in the month of November, every other circumstance being similar, Dr. Edwards, on the 17th of November, 1817, placed ten frogs in water, the temperature of which had been raised to 63°, and maintained at that degree as in the experiments of July and September, the result was a duration of life from 2 hours and 6 minutes, to 5 hours and 35 minutes; being more than double the duration obtained in summer.

Having thus ascertained the manifest agency of the seasons, it is next to be inquired, under what view they are to be considered as producing this effect. A variety of circumstances, connected with the seasons of the year, may affect the animal economy, such as the temperature, the intensity of the light, the weight of the atmosphere, the degree of humidity, or dryness of the air, its state of agitation, and its electric condition. Of these atmospherical agencies, there are none without its influence; but as some of them are as yet not sufficiently appreciated, and there are others which can exert no operation in the present case, it will be necessary to distinguish that to which we are mainly to attribute the striking effect under consideration. This important agent, Dr. Edwards conceives to be temperature, not the *actual* temperature, but that which has for a certain period of time *preceded* the experiments.

The frogs, which were the subject of the experiments of July, were, during the preceding month, under the influence of a mean temperature of 57°; those of September, during the preceding month, to a temperature of 59°; an inconsiderable difference, and the results were not very dissimilar. But the frogs, which were asphyxiated in November, had been, during the preceding month, exposed to a much lower temperature, the mean of which was 45°; and the result was, that these animals lived double the time then that they did in summer, in water of the same temperature.

If we should be warranted in attributing this effect to the antecedent temperature, it would be establishing a most important principle in the operation of the seasons; and it would be interesting to know what change is wrought in the constitution of these animals, capable of thus influencing their existence. If it shall be found that the duration of life constantly corresponds with the antecedent changes of temperature in the air, we must necessarily refer these effects to that cause.

On the 23d of November, 1817, the water and air being at

50°, and the mean temperature of the month being nearly the same, five frogs were immersed in water of that temperature; they lived from 5 hours 10 minutes, to 11 hours 40 minutes; being double the time they lived in water of the same temperature in summer. To ascertain if the influence of the antecedent temperature, increased in descending the scale to 32°, on the 22d of December, the air being at 32° for the twenty preceding days, three frogs were immersed in water at 50°. They lived from 20 to 24 hours. This striking result, when compared to that obtained in the experiments of summer and autumn, still farther proves the influence of antecedent temperature; and if the opinion adopted be correct, we shall obtain, from uniting the preceding temperature of the air at 32°, and that of the water also at 32°, a much greater difference of effect. To verify this conjecture, Dr. Edwards had recourse to the following experiment. On the 23d of December, the thermometer being at 32°, where it had stood from the beginning of the month, four frogs were put into water, the temperature of which was also at 32°. Under this new modification of circumstances, they lived from 24 to 60 hours.

In other experiments, Dr. Edwards found that the same limit of 108°, which proved fatal to frogs in summer, was equally so in every season, whatever the temperature may have been.

From these experiments Dr. Edwards concludes that the duration of life in frogs, plunged under water, is influenced by temperature in two ways: 1. By the temperature of that fluid itself, and 2. By the temperature of the air for a certain number of days previous to the experiment.

With regard to the temperature of the water, it results, that the limits of existence in that fluid are 32° and 108°, that within these limits the existence diminishes with the elevation of temperature, that the longest duration of life takes place at 32°, and that life is suddenly extinguished at 108°.

With regard to the influence of the antecedent temperature of the air, it would appear, that the nearer the season approaches to 32° for some time, the longer the life of these animals is supported under water between the temperatures of 63° and 32°; that the duration of life in these circumstances depends on the relation which exists between the temperature of the air during a certain time prior to the experiments, and that of the water during the experiment; and that the influence of these two conditions conjoined, is so much the greater as the temperature, in the one and the other case is lower.

A Synopsis of the Diseases of the Eye, and their Treatment: to which are prefixed, a short Anatomical Description, and a Sketch of the Physiology of that Organ. By BENJAMIN TRAVERS, F.R.S. Surgeon to St. Thomas's Hospital. One vol. 8vo. pp. 425, six plates, 32 beautifully coloured engravings. London, 1820.

(From the London Medico-Chirurgical Review, for June, 1821.)

"Vel me monere hoc, vel percontari puta:—
"Rectum est, ego ut faciam; non ut deterream." *Ter.*

We believe we shall be credited when we declare that our analytical labours are generally performed "*con amore*," and without any of those feelings of languor, dejection, and disrelish which must often oppress the author whose hard fate it is "to force a churlish soil for scanty bread." Yet we are compelled to confess, however reluctantly, that the perusal of some works puts our patience and our temper completely to the test, whether by generating a great flow of bile, and corresponding irritability of mind;—or by enveloping us in a kind of Beotian atmosphere that stupifies us for a time, until we are enabled to emerge into the cheerful sunshine of intellect once more. On the other hand, when we meet with a work of sterling merit, and at the same time well arranged and well written, we enjoy at least the "feast of reason," if not the "flow of soul;" and it need hardly excite surprise if, in such cases, we prolong the genial banquet to a late hour, from a consciousness that such treats must be comparatively few in our literary journey through life.

We feel ourselves under deep obligations to the ingenious and able author of the work before us, and the profession will undoubtedly appreciate the valuable mass of facts and observations which Mr. Travers has here presented them from extensive personal experience—being, indeed, "the result of a more ample opportunity of observing the diseases of the important organ of which it treats, than commonly falls to the lot of hospital surgeons." This opportunity is derived from a period of seven years official situation as surgeon to the London Infirmary for Diseases of the Eye, besides a wide range of private practice. Our author is of opinion, that "the advantages obtained by the subdivision of professional talent and labour, are infinitely overbalanced by those which arise from the general and undivided application of these instruments of knowledge;" and he thinks this doctrine is strikingly illustrated by the prejudice arising to ophthalmic science in this country, from the

confinement (formerly) of that branch in the hands of a few. This is now at an end, and the *respectable* exclusive oculist will be a name unknown in the next generation. The institutions for treating ophthalmic diseases are now conducted by such distinguished and zealous medical officers, and are disseminating ophthalmic knowledge so widely through the profession at large, that all mystery or pretensions to exclusive superiority must fall, as a matter of course.

The invaluable work before us is divided into three parts: the 1st, dedicated to the ANATOMY and PHYSIOLOGY of the eye and its appendages—the 2d, to the PATHOLOGY of the membranes, humours, and appendages of that organ; and the 3d, to the TREATMENT.

The anatomical portion occupies forty-four pages, and presents an animated, yet exceeding chaste and terse, delineation of all that is interesting to be known, or necessary to be remembered, of the structure of the parts, without wasting his own time, or perplexing the reader by uselessly dividing, and tiresomely naming the "ravellings of minute anatomy." Into this part of the work we cannot be expected to enter. About an equal space is devoted to the *physiology* of the eye and its appurtenances, and to it we may apply the same observation as to the anatomical section.

The first chapter of the SECOND PART of Mr. Travers' book embraces the pathology of the membranes, and is divided into five sections, viz. on the Conjunctiva—Cornea—Sclerotica—Choroid and Iris—Retina. These sections we shall notice in their order.

I. *Conjunctiva.* After some anatomical observations on the vessels supplying the conjunctiva, as derived from two sources, the palpebral and ophthalmic muscular arteries, but very freely inosculating with each other, our intelligent author remarks that, though in a tranquil and healthy state of the eye, little, if any, red blood is admitted into the superficial vessels, yet, under a very temporary excitement, the red fluid enters them on the sclerotic conjunctiva. It is wisely ordered, however, that the condensed connecting texture upon the cornea prevents the admission of red blood into *its* vessels, even under a very high degree of inflammation. Mr. Travers avers that the susceptibility to increased vascularity of parts, under excitement, "is in proportion to the quantity of cellular texture entering into their composition, or connecting them with subjacent parts." For an elucidation of this he refers to a comparison of the faucial and tracheal membrane with the pleura—the periosteum with the lining membrane of the veins and arteries.

The admission of red blood, then, into the *sclerotic* conjunc-

tiva marks pretty accurately the progress of inflammation; while the first effect of this disease upon the *cornea*, is haze or dimness, depending on a loaded state of its serous vessels. This dimness is immediately removed by rebalancing the circulation, or removing the irritation destroying that balance. Transient dimness, in fact, is merely "a condition of congestion;" but, if continued for a certain time, produces a deeper and more permanent opacity, viz. effusion into the connecting texture, and thickening of the conjunctiva upon the cornea. The peritonæal, arachnoid, and synovial membranes, probably exhibit the transient and permanent opacity, in the distinct stages of congestion and effusion. The epidermis, in the state of blush and incipient vesication, forms a striking contrast to the above.

"The conjunctiva is to the cornea what the periosteum is to the bone. It nourishes the superficial lamellæ; wherever it is completely detached, the exposed surface of the cornea ulcerates, and its vessels repair the breach. To pursue the analogy, the interlamellar texture of the cornea may represent the medullary membrane; gangrene therefore does not ensue but from a permanent destruction of both textures, as by blows and explosions, which mechanically disorganize; by the action of lime, gunpowder, strong acids, and other chemically destructive agents; or by the strangulation of the vessels of both textures, as in the excessive chemosis, which destroys on the same principle as the paraphymosis, or the strangulated hernia." P. 91.

The characters of *local and healthy* inflammation of the eye are well known, and exhibit the simplest example of the disease; but this phlogosis is much modified by certain constitutional causes or dispositions—as for instance, struma. In *this* case, (where it has not proceeded to change of structure) the vascularity is inconsiderable. It is marked by great intolerance of light, and, in its simplest form, is almost peculiar to children, stationary—marked by a very slight redness of the sclerotic conjunctiva—and the highest degree of morbid sensibility to light, which, Mr. Travers observes, is purely a disorder of function, never impairing the faculty of vision, though far exceeding that which accompanies the acutest inflammation to which the eye is liable.

"I attribute it," says this acute pathologist, "to a morbid sympathy of the retina with the secreting surfaces of the primæ viæ and the skin, for neither of these organs perform their healthy functions during its existence. The tongue, the index of the former, shows by various signs gastric irritation or disordered digestion, and the cutaneous surface is remarkably dry and harsh. Accordingly it is cured by diaphoretics, as tartar emetic to nausea, James's powder, or calomel combined with opium in small doses; by the warm bath; and materially corrected, if not removed, by a preternatural secretion in

the vicinity, as by an open blister on the nape of the neck. I have often seen an aggravated intolerance removed in twelve hours by the application of a blister." 93.

Other organs of sense, as of the hearing and smell, are sometimes rendered morbidly acute, analogous to the above mentioned state of the eye, and that without any organic change.

The nebula and pustule of the corneal conjunctiva are the terminations of this inflammation, when texture is affected—to which may be added the small herpetic ulcers, reddish brown points, giving to the cornea a scabrous appearance. Aphthæ or pustules are disposed to form on the sclerotic conjunctiva, at or near the verge of the cornea, and not dissimilar, in some cases, to those affecting the mouth, fauces, and intestinal canal. On the cornea, pustules are more rare, except in children; and, like the aphtha affecting the glans penis or fine cutaneous textures, usually terminate in an ulcer.

A puriform discharge, in ophthalmia, is furnished by inflamed meibomian follicles and the conjunctiva bordering them, in the same manner as the lacunæ of the urethra, and the mucous glands of the nares, fauces, rectum, vagina, &c. pour forth a similar fluid, when mildly inflamed—while in vehement acute inflammation of these parts the purulent matter is furnished by the villous surfaces themselves.

"The sclerotic conjunctiva in acute suppurative ophthalmia presents the following states. 1st. Serous effusion (œdema) which is common to other inflammations, and especially those of a less vigorous kind. 2d. Effusion of lymph (chemosis) peculiar to this form of inflammation, by which it acquires a solid augmentation of bulk. 3d. Villosity, or a subsequent prolongation of the extreme vessels in the form of villi, which secrete pus. The strict adhesion of the conjunctiva to the cornea prevents these changes from taking place upon that membrane. Upon the tarsi the conjunctiva thus affected becomes preternaturally vascular, thickened, and scabrous, or forms fleshy eminences. That the vascular villi of the conjunctiva secrete pus, may be ascertained by the aid of a lens. The pus, when formed, collects in the interstices of the villous texture. We have no evidence, as before observed, that the conjunctiva is a secreting surface in a healthy state." 96.

There is a mild, or intermediate form of this suppurative ophthalmia, affecting principally the conjunctiva palpebralis, while that reflected over the globe is simply intumescent. This form seldom injures the cornea, Mr. Travers thinks, but frequently leaves a granulated state of the conjunctiva palpebralis, as in the most acute form. The highly contagious character of purulent ophthalmia is well known. Our author thinks it happens twenty times under three months of age, for once after that period. Fluor albus or gonorrhœa in the mother—the

transference of matter by towels, sponges, or any other vehicle, from one person or part to another, are the usual means of propagating this dire affection, which runs through armies, schools, and families; certainly contagious, but sometimes apparently epidemic.

Chemosis and ecchymosis have been confounded together by some writers; but, as will be seen in the last quotation from our author, they are widely different. It is after the effusion of lymph, in chemosis, so characteristic of purulent ophthalmia, that the conjunctiva forms "fungous excrescences, pendulous flaps, or hard rolls protruding between the palpebræ and globe, and everting the former, (ectropion,) if not protruding, causing the turning of the lid over against the globe, (entropion.)" The tarsal portion also takes on the hard granulated surface, productive of incessant irritation of the sclerotic conjunctiva, ultimately rendering the cornea opake. Various other morbid membranous growths, referrible to irritation, are described by our author at page 99, as also the fungous conjunctiva, a firm fleshy growth projecting from between the eyelids and globe, of an orbicular figure.

The conjunctiva, like the mucous membrane of other parts, is sometimes the seat of carcinoma, which is not the case, Mr. Travers thinks, with any other structure of the eye, excepting the lacrymal gland. The PANNUS, or chronic thickening, with opacity, of the sclerotic conjunctiva, results, Mr. T. thinks, from relaxation of its subjacent connecting tissue, whereby the membrane becomes redundant in extent, and folded in duplicatures on all sides of the cornea—somewhat analogous to the elongated uvula.

"The membranous pterygium is a true nebula of the sclerotic conjunctiva: the fleshy is an adipose or sarcomatous growth beneath the sclerotic conjunctiva. It extends from either canthus or sinus palpebralis, most commonly from behind the caruncula lacrymalis; and by its increase forcibly detaches the conjunctiva from the cornea. In its progress it occasions a permanent and indelible opacity by the thickening of the conjunctiva, and the deposition of lymph in the interspace of these membranes, in the form of a little tongue-shaped process. The wedge-like figure of the fleshy pteryx, and its gradual extension upon the cornea, afford the best pathological demonstration of the continuity of the conjunctiva; and the spread fan-like figure of the membranous, its semi-transparency as well as its termination in simple nebula of the corneal conjunctiva, shows the difference in the nature of the two diseases. Both this and the disease last mentioned, like other morbid growths of the cellular texture or beneath it, are most prevalent in warm climates." 101.

The encanthis, a morbid enlargement of the lacrymal caruncle, is extremely irritating, and occasions epiphora by a forcible

diversion of the lacrymal puncta from each other, and from the surface of the globe. Mr. Travers has never known it assume a malignant character. The conjunctivæ palpebrarum and scleroticæ occasionally adhere by membranous bands, called FRENA or FRENULÆ, forming a troublesome and often an irremediable deformity. It is not necessary that both surfaces should be wounded, in order that adhesion may take place. "The opposite uninflamed surface, as Mr. Hunter observes, accepts of the union."

"I have seen these frena produced by a slit eyelid from a fall, and trifling as the inconvenience might seem, it so restricted the motions of the globe, and the disease was so materially aggravated by operations to relieve it, *i. e.* by the multiplication of frenula, that the patient became disturbed in his intellects from an exaggerated sense of his misfortune." 104.

The sclerotic conjunctiva being a *mucous*, and the corneal a *serous* membrane, the *former* has a tendency to suppurative, and the *latter* to adhesive, inflammation. This is their pathological distinction.

II. *Cornea.* Ulcer of this texture begins, not in abscess, but in a circumscribed deposit of lymph, or in pure ulcerative absorption, without pus, and unaccompanied by any appearance of coloured vessels. The organizing process, however, is sometimes performed by these last. The appearance of coloured vessels upon the corneal conjunctiva may be referred to one or other of the following states, viz. 1st. to the presence of adhesive inflammation excited by a pustular ulcer of the cornea—2d, to the duration of acute strumous ophthalmia, rendering the serous vessels pervious to red blood—3d, to a state of chronic inflammation, in which, straggling solitary vessels, of a varicose appearance, run to one or more specks; or, proceeding from opposite sides of the sclerotic conjunctiva, traverse the opaque cornea, and freely anastomose upon it—a common sequel of purulent ophthalmia, whether accompanied or not with the granular conjunctiva tarsi. Many acute physiological and pathological conjectures are here introduced by our author, for which we refer to the volume itself.

The acute interstitial ulcer sometimes opens externally, by absorption of the conjunctiva and superjacent portion of lamellæ. Its figure is frequently crescentic, and traverses a part, or the whole diameter of the cornea. Upon close examination, the conjunctiva will be found to be absorbed at the part opposite to the ulcer, and the exposed scabrous surface of the cornea renders the motions of the upper lid acutely painful.

"The deposition of the adhesive track precedes the appearance of red vessels, which are derived to it in one or more fasciculi from the sclerotic conjunctiva, and by which its healing is perfected, as in the ulcer opening from the surface, before described." 115.

The acute interstitial ulcer, in debilitated habits of body, or when produced by considerable violence, instead of opening upon either surface of the cornea, spreads between its lamellæ —and if it occupy a large and central portion of the cornea, it usually terminates by slough of the entire membrane.

But when, as more frequently happens, the interstitial ulcer opens into the anterior chamber, HYPOPION is produced, a mixed secretion of lymph and pus—the former flaky and inorganizable, and situated exterior to the fluid.

When the cornea is perforated by external ulcer, the iris falls into the breach, and there becomes adherent, termed procidentia iridis.

"In the progress of an external ulcer to the interior of the cornea, and before it penetrates into the chamber, a remarkable appearance is occasionally presented, viz. a transparent vesicle, which fills the aperture, and is supposed to be the membrane of the aqueous humour. I have never seen this state maintained: the prolapsus iridis follows in a few hours, notwithstanding the use of the lunar caustic and other stimulants. This has led me to question its being a distinct texture, and its appearance corresponds accurately to that of the innermost lamella of the cornea, which after losing its support yields to the pressure of the humour, and assumes the vesicular form." 117.

Opacities of the cornea are of three kinds—1$^{mo.}$ thickening of the conjunctiva and effusion of adhesive matter between it and the cornea, or between the lamellæ of the latter—commonly the product of acute strumous ophthalmia. While recent it admits of removal by excitement of the absorbents, "especially by that which mercury produces." 2$^{ndo.}$ a slow change of texture without breach, "similar to that by which the pleura, or choroid, or capsule of the lens is converted into bone." The yellow pearly opacity, resembling the inside of an oyster-shell, is of this kind. It generally results from continued, or frequently relapsing strumous inflammation, the layers of the cornea becoming opaque, indurated, and condensed, not admitting of separation by the knife or maceration. 3$^{tio.}$ new matter supplying a loss of substance in the cornea, from ulceration or gangrene. Its figure is more abruptly circumscribed than the second variety, and bears a greater resemblance to a cicatrix. The more these specks vary from a white colour, the less chance is there of reducing them.

"The peculiar hue and loss of tension, as well as lustre, of the *dead* cornea in acute suppurative ophthalmia, has been aptly pictured by Mr. Saunders, by the terms 'cindery, ragged, flocculent.' It is

important, because I have satisfied myself that the first change of the cornea in this disease is purely nebulous, produced by the deposition of adhesive matter; and if the inflammation be arrested even on the verge of gangrene, the cornea is susceptible of restoration by absorption. This fact I had lately an opportunity of establishing, in the case of a lady who was rendered blind by acute suppurative inflammation of the conjunctiva: so inevitable to all appearance was the destruction of the cornea, which had sloughed in a deep sulcus at its junction with the sclerotic above, that the most experienced practitioner of my acquaintance in this branch of surgery pronounced the case hopeless and irremediable, and took his leave. The highest tonic regimen, bark, wine, and opium, followed close upon a very active and bold depletion, and the anterior chamber was fortunately and unexpectedly preserved. No sooner was a sign of the arrest of sloughing ulceration obtained, than I commenced a mercurial course; in three days the system was affected; the recovery of the figure and transparency of the cornea was rapid and complete beyond all expectation, and an equally perfect state of vision was restored and established." 120.

Gangrenous opacities of the cornea from foreign substances, destroying its texture, are sometimes superficial, and a kind of exfoliating process takes place. More frequently the disorganization is complete. Recent opacities of a diffused semi-transparent character admit of absorption. Not so where the interstitial deposition has been abundant and of long standing—and the lamellæ compacted.

Mr. Travers has seen several cases where the conjunctiva was converted into a rugous and opaque skin, knitting the lids close to the globe. There is here no secretion of tears, and our author attributes the disease to an obliteration of the lacrymal ducts from chronic inflammation of the conjunctiva.

"All stimulant substances, not escharotic, applied to remove opacities of the cornea, act in the same manner as rubefacients upon the skin; they excite a temporary vascular action, which is followed by a correspondent excitement of the absorbents. I have often seen an opaque portion of the cornea cleared by a puncture with the couching needle. If the point of salutary excitement is exceeded, the increased vascularity is permanent, and occasions increased deposition. Injections applied to ulcers do not excite the absorbent action in the same ratio, but occasion a permanent increase of the vascular action, which is here below the ordinary standard. This instance of the adaptation of the same means to different ends, according to the state of the part, is perhaps the best practical illustration of Mr. Hunter's quaint but expressive phrase, "stimulus of necessity." 121.

Mr. Travers' pathological observations on staphyloma are very acute and interesting. We can glance at but a few of them. This distressing and unsightly complaint is of two kinds, viz. from dilatation and breach of the cornea. In the first, or spheroidal staphyloma, the effect of pressure is to thicken the remain-

ing corneal lamellæ by a deposition of adhesive matter, as in the aneurismal and herniary sacs. In the second, or conoidal staphyloma, the recently deposited matter yields to the pressure *a tergo* before its organization is complete. Sometimes the two forms are combined. The remediableness of the deformity, by an operation, depends upon a sufficient portion of the iris being left—this last being kindly disposed to granulate. "Three or four days after the operation for staphyloma, the iris is seen coalescing with the conjunctiva, and throwing up fleshy pullulations, which, contracting into a little button-like eminence, seal up and permanently secure the crystalline and vitreous humours; thus the spherical figure of the globe is preserved to support the lids." If the section be posterior to the plane of the iris, the vitreous humour escapes, the globe collapses, and sinks in the socket.

There is a curious conoidal projection of the cornea, from thinning and absorption of its interlamellar texture, rendering vision inconveniently short, so that objects, at a very moderate distance, are much confused in their appearance. It is not preceded by inflammation or any assignable cause, and no remedy has yet been found for the complaint. "But a pupillar aperture set in a black ring frame, about a quarter of an inch or more in depth, greatly assists the patient by lessening the confusedness of his vision." The presence of adhesive inflammation seems to be the chief distinction between staphyloma and conical cornea.

III. *Sclerotica.* After some acute anatomico-pathological observations, Mr. Travers goes on to remark, that when inflammation of the conjunctiva is allowed to progress, the ciliary vessels partake in the action, and give signal of this participation by the well-known and remarkable appearance of a vascular zone at the margin of the cornea. The texture of the sclerotica, however, serves as a shield to the finer tunics, to ward off inflammation from without, as well as external violence. When inflammation has at length reached these interior tunics, the vision is affected in a much greater degree than appearances would lead one to suspect. When the sclerotica is inflamed, the vessels which pursue a straight course to the margin of the cornea are strongly distinguished. They have a somewhat darker hue than the areolar vessels upon the loose portion of the conjunctiva. Mr. Travers has seen occasionally a primary sclerotitis, unaccompanied by any affection of the iris, and with a very slight vascularity of the loose conjunctiva. The inflammation is not acute—sometimes accompanies, and is sometimes metastatic of rheumatic inflammation. It is often seen with eruptions and sore throat of a pseudo-syphilitic nature. This coat sometimes yields in spheroidal staphyloma.

IV. *Choroid and Iris.* When the vascular zone at the margin of the cornea, before alluded to as indicative of sclerotic inflammation, is accompanied with dulness of the humours, a spastic contraction, or a very sluggish and limited motion of the pupil, impatience of light, and dimness of vision, we may conclude that the choroid and iris partake in the inflammation. The above indications are still farther confirmed by the presence of an habitual aching pain in the globe of the eye, forehead, and orbit, together with hair-like red vessels on the iris, and specks of extravasated blood in its substance. Adhesive inflammation takes place between the fibres of this muscle; the pupil loses its thin flowing edge, and becomes stunted, and gibbous. IRITIS of moderate acuteness is often unaccompanied by any other appearance of inflammation: there being no distinct deposit of lymph, its deposition being rather inferred from the fixedness or slight change of figure in the pupil, than actually demonstrated. In this form, there is such an evening, or early morning exacerbation of pain, as compels the patient to get up, and even totally to deprive him of rest.

"Sometimes the pain affects the whole corresponding side of the head. In other instances, it is confined to the eyeball and its immediate vicinity, as the forehead, and temple, and bones of the cheek. The sensation is sometimes that of pulsatile pain, marking every injection of the ophthalmic artery, as of the radial artery in a whitloe. A sense of continued pressure or constriction, as from extreme distension of the vessels, is the more common character of the patient's sufferings. In the vehement acute iritis, lymph is variously deposited upon the face of the membrane, in small tufts here and there, or larger tubercular masses. The pupil, in this case is usually much misshapen, being rendered angular at those points of the circle at which the deposit has taken place, or is most abundant. Its aperture is sometimes partially covered, and sometimes completely blocked by a deposit of lymph. The pain, in this state, is not always augmented in proportion. It affects more the head than the organ. The vision is nearly, if not quite extinguished. The appearance of a stratum of lymph, coating the face of the iris, with a turbid state of the aqueous humour, belongs to chronic inflammation, which tends to opacity of the capsule of the lens, and constriction of the pupil." P. 133.

Primary iritis, as from syphilis or mercury, is distinguished from the *secondary*, or that by extension from the conjunctiva, by sparing vascularity of the latter, and consequently more distinctly conspicuous vascular zone. The attack is more sudden, the pain in the region of the orbit and head commences with the inflammation, and is more severe—the vision is more quickly and completely bedimmed—the effusion of lymph is *en masse*, and the disfiguration of the pupil greater. The terminations of iritis, if unsubdued, are constricted or closed pupil, with opaque

capsule—coadhesion of the iris and cornea, partial or entire—organic amaurosis, followed by disfiguration of the globe, and often by protrusions of the choroid and sclerotica.

Primary iritis, our excellent author remarks, is rarely seen unaccompanied or unpreceded by syphilitic, pseudo-syphilitic, or what are called mercurial symptoms: yet Mr. Travers has seen it exist independently of these.

"But I have since had many additional opportunities of confirming the facts before advanced, that where mercury has been used in various ways before the iris was affected, and before the other symptoms appeared which were referred to its use;—where the primary affection was either altogether questionable, or at most a gonorrhœa, or a superficial sore, which healed by a simple topical application—the iritis has yielded to the steadily supported influence of mercury upon the system, in a manner the most satisfactory; and that no other remedy with which I am acquainted, was competent to this effect." 135.

Mr. Travers adds that he is unacquainted with any fact in medical surgery which ranks with this, in point of importance, whether we consider the urgency and frequency of the occasion, or the indispensable necessity, and almost unerring efficacy, of the remedy.

The iris undergoes changes of colour, texture, and figure, by a continuance of inflammation. For these we refer to page 136 of the work.

V. *Retina.* This is rarely the seat of inflammation; and Mr. Travers thinks that it is an error to consider intolerance of light as a sign of this affection. In the strumous ophthalmia intolerantia lucis is in excess, yet the retina is uninjured. The effect also (Mr. Travers avers) of inflammation upon a nerve of sense, is to produce direct palsy, not increased excitability. The first or predominant symptom of an inflamed retina is a sudden attack of "vehement dashing pain of the most distracting kind," extending from the bottom of the eyeball to the occiput, or in the reverse direction, and the supervention, within a few hours, of total blindness, with occasional sparks and flashes of vivid light. The pupil, upon inspection, is gaping and motionless, as in confirmed amaurosis, and the humours are thick and muddy. The external signs of inflammation are in no proportion to these symptoms.

In some cases *choroid* inflammation attends, and in these the pupil is not thrown open, but is motionless. Besides diffused vascularity of the conjunctiva, the straight ciliary vessels are remarkably turgid, so as to give a livid red hue to the sclerotica around the cornea. The pupil soon becomes plugged with lymph, or the whole iris bulges forward, changes colour, and

the crystalline turns opaque. The pain is attended with an alarming kind of confusion, as though the patient were about to lose his intellects. When the internal signs of inflammation are less obvious, and the humours and internal tunics undergo a slight but complete disorganization in the progress of the disease, meteoric flashes are frequent, even after the inflammation has run its course, affording delusive hopes of returning sight to the unfortunate patient. Mr. T. has seldom seen an example of this inflammation affording time for the beneficial operation of remedies.

Of amaurotic affections Mr. Travers makes two classes, organic and functional—the *first*, comprehending all alterations, however induced, in the texture or position of the retina, optic nerve, or thalamus—the *second*, including suspension or loss of function in the retina and optic apparatus, whether depending on morbid action in the vascular or sentient system of the organ. As causes of the first class we may enumerate,

"1. Læsion, extravasation of blood, inflammatory deposition upon either of its surfaces, and loss of transparency of the retina.

"2. Morbid growths within the eyeball, dropsy, atrophy, and all such disorganizations as directly oppress or derange the texture of the retina.

"3. The state of apoplexy, hydrocephalus, tumours or abscesses in the brain, in or upon the optic nerve, or its sheath, and thickening, extenuation, absorption, or ossification of the latter.

"As causes of the second,

"1. Temporary determination; vascular congestion, or vacuity, as from visceral and cerebral irritation; suppressed, or deranged, or excessive secretions, as of the liver, kidneys, uterus, mammæ, and testes; various forms of injury and disease; and sudden translations of remote morbid actions.

"2. Paralysis idiopathica, suspension or exhaustion of sensorial power from various constitutional and local causes; from undue excitement or exertion of the visual faculty; and from the deleterious action of poisons on the nervous system, as lead, mercury, &c." 141.

From the above we may easily see that organic, and many forms of even functional amaurosis are incurable; whilst it must be recollected that the functional cases, by continuance, lapse into organic disease. "Even under the continued suspension of function, much more the duration of a state of excitement, the power of the retina, as of other parts, gradually fades, and is at length exhausted."

Here our author makes many ingenious and highly interesting observations on both classes of amaurosis, as they are caused or influenced by different habits, professions, &c. and also on the different degrees of fortitude with which the dreadful loss of light is borne. For these particulars we refer to page 144 *et seq.* of the work itself.

When the seat of *organic* amaurosis is in the eyeball itself, there are generally some or all of the following phenomena, viz. preternaturally, or at least, fully dilated pupil, feeble in its contractions on the sudden application of light, or absolutely motionless; an appearance common to both classes, though not invariable in either—congestion of the superficial vessels, especially of the long fasciculi of conjunctival veins—peculiar bluish grey tint of the sclerotic coat—sometimes a bulging out of one or more sides of the globe, or loss of sphericity, the sides appearing flattened—a diffused turbidity or milkiness apparently of the vitreous humour, resembling the humours in the eye of the horse, and termed glaucoma by the ancients, often mistaken for incipient cataract. "It appears deep-seated, diffused, and of uniform density; and in examining some such cases at long intervals, I have not found the appearance vary." The lens remains transparent. Mr. Travers acknowledges, however, that there are cases of deep-seated opacity so closely resembling that of incipient cataract, that it becomes next to impossible to decide on the actual state of the lens. A more common phenomenon in amaurosis is a white or greenish yellow spot, apparently in the fundus of the eye, and a little to one side of the visual axis, sometimes having a splendid disc resembling the tapetum of the sheep, or the coloured choroid of fish; but more usually occupying a circumscribed annular space, and is seen only in a strong light, and in a particular direction. The causes of this point are involved in obscurity. However, it is by no means a constant appearance in amaurosis, nor is it incompatible with useful vision.

"In the amaurosis from inflammation of the choroid or retina, where the diseased action has entirely subsided, the veins of the conjunctiva are varicose, the iris is discoloured, thick, tough, inelastic, and preternaturally vascular; the substance of the crystalline is more or less absorbed, or converted into a fluid, and discoloured; the vitreous humour is opaque and of a deep yellow colour. The retina, like the other transparent textures, becomes opaque under inflammation, and it is probable that under these circumstances, adhesive matter is effused upon the interior of the choroid; this supposition I have never had an opportunity of verifying by dissection, in cases of which the history was known." 150.

Our author here relates two curious cases; one of absorption of the vitreous humour and collapse of the retina; the other of amaurosis, from cerebral tumour. Many cases of amaurosis from concussion have fallen under the inspection of Mr. Travers; and also of congenital organic amaurosis, for which we must refer to page 152 *et seq.*

At page 155 Mr. Travers takes up the subject of functional amaurosis, which he divides into three species, viz. 1^mo. the

symptomatic, or that which is merely a symptom of some general disease, or disordered state of the system, as of general plethora, general debility, &c. 2ndo. The *metastatic*, produced by sudden transference of morbid action from another organ of the body, as from the skin, testicle, &c. 3tio. The *proper*, depending on a peculiar condition of the retina, as visus nebulosus, muscæ volitantes, &c.

Symptomatic species. This, like nervous deafness, sometimes follows typhus, scarlet fever, infantile fever, and other acute constitutional diseases. It is sometimes a consequence of chronic wasting diseases, in which organic changes interrupt the nutrition of the system. Mr. Travers has seen a rapid and severe salivation, instituted for a remote affection, produce gutta serena of both eyes. The state of the circulation has a marked influence upon imperfect amaurosis, as well as upon nervous deafness. Mr. T. knows patients whose vision is benefited in a high degree, and others in whom it is as much deteriorated by the quickened circulation of a full meal and a few glasses of wine. The former, as may naturally be supposed, are spare and meagre; the latter plethoric. Of the mental emotions, grief appears to be most influential in producing symptomatic amaurosis. This affection is often seen in young widows. The amaurosis lactantium, in which the infant preys upon its mother, exhibits a familiar example of the disease from constitutional debility.

"Amaurosis depending on vascular congestion is marked by some or all of the following symptoms, viz. dilated and sluggish or immoveable pupil, ptosis, or strabismus, and oblique or double vision of the affected eye; a preternatural action of the carotids, flushed face, sense of weight, pain, or stricture of the scalp, lethargy, occasional tinnitus aurium, with greatly disordered and irritable stomach. The patient frequently complains, particularly in straining, stooping, or on first lying down, of seeing luminous sparks or flashes, and a reflection of one or more of the choroidal vessels, the visible pulsation of which is a cause of much distress to him. A person thus affected accurately described to me the zona minor iridis, as distinctly presented to his view." 158.

Undue determination of blood to the head often exists independent of general plethora, "and is aggravated by loss of blood," of which Mr. Travers relates an example in the person of a young medical gentleman, who came to him from the country in extreme anxiety, and solicited him to apply a ligature to the carotid artery. This gentleman was of short stature, and constitutionally healthy. His pupils were large, his countenance suffused, and bearing the appearance of preternatural determination of blood to the head. He had had two inflammatory

attacks in the April and October of the same year; during which he had lost upwards of an hundred ounces of blood. He had now a constant heavy pain in the head, chiefly over the coronal suture, and in the direction of the sinuses, with tinnitus of the left ear.

"After stooping the giddiness was extreme, and a golden coloured spot, edged with black, appeared floating before the eye. He had been troubled with muscæ in excess, for a year and a half past; he had now fire sparks flashing before the sight, and saw a pulse in the choroid synchronous with that of the wrist. When looking at near objects he was not troubled with muscæ, but they were always numerous, in proportion as the object was remote. He did not complain of much dimness. His complaints were not relieved by topical blood-letting. He recovered gradually, but perfectly, under a regulated diet, and a course of the blue pill with saline aperients." P. 160.

The amaurosis from depletion is sometimes mistaken for that from plethoric congestion, owing to the coincidence of a dilated and immoveable pupil, muscæ, and a deep-seated pain in the head, with occasional vertigo, together with its occurrence often in corpulent habits. It supervenes somewhat abruptly on uterine floodings, and large and sudden depletion for acute diseases. The pain is not confined to the region of the orbit, but is that peculiar nervous pain to which women are subject after uterine hæmorrhage, attended with a sense of defined pressure, "as of an iron finger on the brain," and sometimes a distressing jarring noise, like that of a mill or threshing floor. "By a cautious use of tonics it is relieved—by whatever lowers or stimulates, whether diet or medicine, it is decidedly aggravated." The vision, in this form of amaurosis, our author observes, is further enfeebled by the loss of as much blood as flows from two or three leech-bites. This, he avers, is not imaginary. He has seen distinctly marked cases of it, "in which large and copious venesection was still urged as the only resource of art." This he considers to be a fatal mistake. We have seen several cases where local congestions of blood in the head, lungs, and other organs, appeared to depend on some peculiar state of the system which caused the blood to concentrate in these parts, while some other parts were deficient of the proper quantity. Here neither general nor local depletion did good. But we have seen decided advantage from revulsive measures, quietude, and regulated regimen. For amaurosis sympathetic of irritable conjunctiva, we must refer to page 161 of the volume itself.

Metastatic Species. Mr. Travers has seen this species of amaurosis from the state threatening effusion into the chest—from gout in the foot—swelled testicle; in all which cases the oppressed organ was as suddenly relieved as the eye was affect-

ed. "Thus a person goes to bed with good vision and rises blind." Here our author relates cases in illustration.

The gout attacks the eye through the medium of the stomach; vomiting occurring, with gastric pain, on the subsidence of inflammation in the extremities, succeeded by violent head-ache, with sudden and permanent loss of sight. To this class also belong the cases of amaurosis consequent upon the sudden suspension of the catamenia, or habitual hæmorrhoidal discharges —the rapid healing of large ulcers—the sudden retrocession of cutaneous eruptions.

Amaurosis proper. The following case will best explain a temporary palsy of the retina from over excitement. It is given in the words of a young gentleman ardently engaged in the study of the profession when thus interrupted.

"'Having habituated myself for the preceding twelve months to intense study, reading and writing to a very late hour, which had been only interrupted for a few days by a slight inflammation of my right eye, I quitted London to recruit my health in the purer air of ———. This daily improved, but I found a growing imperfection in the vision of my left eye, which advanced unaccompanied by inflammation, pain, or any other external symptom of disease. It seemed at first a film before the sight, but at length amounted to a total loss of vision. On examination, I found the pupil greatly dilated, and learned that the iris had little or no action. By the advice of Mr. T. whom I now consulted, I applied a blister, extending from the centre of the forehead round the eye to the root of the nose. This drew well, and I continued it open for ten days, closing the eye from light during that period. I took at the same time a calomel and opium pill thrice a day. In the space of a few days my mouth became sore; the pupil acted, though unequally, and I experienced a gradual recovery of vision. In the course of six weeks, I was enabled to resume my studies, and could perceive no defect of vision. I had gradually reduced the dose of calomel, and now discontinued it, drinking the decoction of sarsaparilla. At the distance of four months from this occurrence, the pupil is regular and active, and the sight unimpaired.'" 165.

Symptoms of Amaurosis. Pain in the head and temples is a precursory symptom of amaurosis, diminishing as the dimness increases, and usually ceasing altogether when the amaurosis is complete. If, however, the pain be severe, remitting imperfectly, and increased by exercise, whether diffused or circumscribed in extent, it is usually connected with an *organic* cerebral change. In *this* case, derangement and torpor of the primæ viæ, loss of strength and flesh, disposition to stupor, occasional confusion of intellect, inaptitude to exertion, and paralysis of one or more muscles, will be concomitant symptoms.

"There is an intermittent spasmodic pain accompanying some cases of amaurosis, shooting through the orbit into the head, of the most acute and distressing severity; it makes a periodic attack at or about the same hour, every night, or every second night, and continues for several hours; it is accompanied with convulsive quivering of the muscles of the eye and eyelids, and profuse lacrymation; there is nothing in the appearance of the organ to explain its nature and origin." 168.

Mr. Travers believes it to be a *tic douloureux* affecting one or more of the orbitar branches of the fifth pair of nerves. He has cured two cases by arsenic, where opium failed to prevent the paroxysm. Paralysis of different muscles, as the levator palpebrarum, orbicularis, &c.—vertigo—ptosis—loss of association and direction—and strabismus, are all more or less symptomatic of amaurosis, and on each of these our author makes acute and interesting observations. The same may be said of Mr. Travers's remarks on hemiopsia—distorted position of objects, and muscæ fixed or floating. When these last are fixed, they usually belong to organic amaurosis—when floating, to functional sympathetic or proper amaurosis. In the fixed musca, the opaque spot varies in density, in different individuals, "and under a long but gentle mercurial course, I have known it become considerably less dense, so as not to intercept bright light."

The musca volitans is sometimes solitary; but more frequently an immense assemblage, descending in a cloud as the eye is raised, and ascending as it is depressed. The patient's attention being minutely directed to these spectra, they are curiously and minutely described.

"Almost every person has, at some time or other, seen these appearances, but especially those subject to dyspepsia, and disordered function of the stomach and liver. At the moment of approaching deliquium, they appear in one vast cloud, and they are harbingers of the intense bilious head-ache. At the instant of their appearance, the sentient extremities upon the fingers and tongue are so benumbed, that objects of touch and taste convey a very indistinct impression, as if some muffle were interposed. These sensations I am describing *ad vivum*, for I was formerly often the subject of this attack, which was followed by a certain degree of confusion of intellect, and temporary suspension of memory, so as greatly to embarrass, if not to take away the power of intelligible expression. I mention these opposite and transitory states of emptiness and plethora concomitant with the floating muscæ, to show the purely functional origin of the affection. The one (deliquium) is an uninjected, the other (sick head-ache) an over-injected or congested state of the nervous texture; or suspension from vacuity, and suspension from plethora. An analogy is plainly to be perceived between the corresponding states of the sentient and visual extremities, described in the last affection, to that of a temporary incomplete paralysis." 177.

Coloured spectra, or luminous impressions of objects remaining upon the retina, are usually preceded by the fixed muscæ, and may then be regarded as a more advanced stage of the complaint, though sometimes Mr. T. has known them to be symptoms of functional derangement, and to disappear as the vision recovered. For a very curious and interesting case in illustration, we refer to pages 179-80-81 of the work.

A very frequent and characteristic symptom of functional amaurosis, our author observes, is a thin mist, fog, smoke or gauze, which takes off the *acies oculorum acer*. Thus the letters of a book run together, and the outline of all minute objects is indistinct. This affection is unaccompanied with irritable conjunctiva, or tendency to effusion. It is seldom relieved by glasses—never permanently. The iris appears irritable and unsteady, often contracting quickly, but vascillating between contraction and dilatation, without a change of the light.

Another functional affection is an oscillation or wavering of objects, occasioning a dazzling and confused perception—sometimes resulting from simple congestion, but occurring sometimes in Mr. Travers's experience, without any sign of this state, and in persons of an opposite frame and temperament. In functional amaurosis there is sometimes a loss of the adjusting power, and consequently of distinct vision at different distances. That gradual abridgment of the focal range, occurring in advanced life, and requiring convex glasses, Mr. Travers refers rather to a loss of power in the retina than to a permanent change in the figure of the globe, on which it is usually supposed to depend. The same taking place, more abruptly, in early or middle life, Mr. T. considers a symptom of amaurosis.

"Ordinary observation proves that the effect of wear and tear is to allow of good distant vision, in which the parallelism of the rays of light supersedes the necessity of adjustment, while the near sight which requires the active or tonic state of the adjusting faculty, is impaired or lost. But if, as sometimes happens, the vision of near objects remains good while the distant is obscured, the evidence of the faultiness of the retina is direct. The correction of a defective adjustment by the use of glasses, in either case, proves no more than that the retina is not organically affected, while the failure of this corrective, which is frequent in the cases referred to, demonstrates the functional debility of the retina. In most of these cases the use of glasses is of temporary benefit, but if continued, it is followed by uneasiness or pain in the eyeball." 184.

Many other phenomena of impaired vision are alluded to at pages 184 and 185 of the work, to which we refer. Many curious and important observations follow on the influence of light on amaurosis, according to the state of the retina, and pupil, &c. Some people affected with imperfect amaurosis see

clearest on first waking in the morning, others the reverse. In such cases the state of the stomach has an obvious influence. Emptiness will produce muscæ and a temporary blindness. In many amaurotic patients vision is clearest in the evening, appearing to have gained strength by exercise. These differences, Mr. Travers observes, are mostly referrible to the various susceptibility of the retina determining the requisite degree of illumination of objects for vision, and the adaptation of the pupil to that purpose. The cases of day and night blindness present the opposite extremes of variation in susceptibility of the retina, and these must be regarded as cases of proper functional amaurosis. The remarkable efficacy of blisters upon the temples in these cases confirms this fact. Our intelligent author has had abundant opportunities of ascertaining the influence of trades in producing or aggravating amaurotic affections. Tailors and shoemakers commonly remark that they never see so well as upon a Monday morning, which they justly attribute to the repose of the organ during the preceding day.

The action of the iris, in its pupillary movements, is, generally speaking, the surest indication of health in the retina. The mean state of the pupil is that of dilatation, where an amaurotic affection exists. When the perception of light fails altogether, the pupil is generally fully dilated and quite motionless.—In other cases it is not perfectly circular.

"The activity of the iris requires the free and uncompressed state of the retina, iris, and ciliary nerves. In the various forms of amaurosis, its activity is proportioned to the degree of integrity which these several parts retain, and the intensity of the stimulus. If the retina be opaque, compressed, or unsupported, the iris mechanically disordered, or the ciliary nerves palsied, the pupil is inactive, independently of the state of vision. In the first of these cases, it is evident the vision will be lost; but we continually see useful vision combined with the second and third, as after operations in which the iris has been half destroyed, or has become permanently adherent, or in malformations where it is half wanting; and in paralysis of the ciliary nerves accompanying the state of ptosis. But how shall we explain the activity of the iris in a state of absolute blindness? a case by no means uncommon. We can only explain it by concluding the organ to be sound, and the cause of the amaurosis remote, or at least external to it. Its motions in such a case are purely involuntary; the mental perception being suspended or annihilated. All that is required to excite them is the impingement of the ordinary stimulus upon the unchanged retina, the white sheet upon which the images of objects are impressed, the instrument, not the organ of perception. The iris, in such a case, acts by a sympathy independent of the brain." 188.

Thus, in two young ladies the iris was even vivacious, though blindness was complete, as was the case where a circumscribed

tumour compressed the left optic nerve, immediately behind the ganglion opticum, producing total blindness. In cases of perfect amaurosis, where the pupil retains its ordinary size, but is motionless, (a circumstance by no means rare) Mr. Travers thinks that the retina has most probably undergone a change of texture. The ciliary nerves are uncompressed, as may be inferred from the undilated state of the pupil, but the source of their excitement, sympathy with the retina, is destroyed.

In concluding the subject of amaurosis, our author introduced a curious fragment from Milton, namely, his letter to Thevenot, a celebrated French oculist, describing the symptoms and progress of amaurosis in his own case, from functional debility to the confirmed, perhaps organic gutta serena. As the letter is not long, we shall give it a place here, out of respect to the memory of our immortal bard.

"Decennium, opinor, plus minus est, ex quo debilitari atque hebescere visum sensi, eodemque tempore lienem, visceraque omnia gravari, flatibusque vexari; et mane quidem, si quid pro more legere cœpissem, oculi statim penitus dolere, lectionemque refugere, post mediocrem deinde corporis exercitationem recreari: quam aspexissem lucernam, Iris quædam visa est redimere: haud ita multo post sinistrâ in parte oculi sinistri (is enim oculus aliquot annis prius altera nubilavit) caligo oborta, quæ ad latus illud sita erant, omnia eripiebat. Anteriora quoque, si dexterum forte oculum clausissem, minora visa sunt. Deficiente per hoc fere triennium sensim atque paulatim altero quoque lumine, aliquot ante mensibus quam visus omnis aboleretur, quæ immotus ipse cernerem, visa sunt omnia nunc dextrorsum, nunc sinistrorsum natare; frontem totam atque tempora inveterati quidem vapores videntur insedisse; qui somnolentâ quâdam gravitate oculos, a cibo præsertim usque ad vesperam, plerumque urgent atque deprimunt; ut mihi haud raro veniat in mentem Salmydessii vatis Phinei in Argonauticis:

> ——— κάρος δέ μιν ἀμφεκάλυψεν
> Πορφύρεος, γαίαν δὲ πέριξ ἰδόντι φέρεσθαι
> Νειόθεν, ἀβληχρῷ δ' ἐπὶ κώματι κεκλιτ' ἄναυδος.*

Sed neque illud omiserim, dum adhuc visûs aliquantulum supererat, ut primum in lecto decubuissem, meque in alterutrum latus reclinassem, consuevisse copiosum lumen clausis oculis emicare; deinde, imminuto indies visu, colores perinde obscuriores cum impetu et fragore quodam intimo exilire; nunc autem, quasi extincto lucide, merus nigror, aut cineraceo distinctus, et quasi intextus solet se affundere: caligo tamen quæ perpetuo observatur, tam noctu, quam interdiu, al-

---

* "——— Vertigo vero ipsum circumdedit
"Atra, et terram opinatus est circumagi
"Ab imo, in languidum vero soporem delapsus est elinguis.
BECK'S APOLLONIUS RHODIUS. Lib. 2. v. 20

benti semper quam nigricanti propior videtur; et volvente se oculo aliquantulum lucis quasi per rimulam admittit."

"LEONARDO PHILARÆ, ATHENIENSI:
"Septemb. 28, 1654."

PATHOLOGY OF THE HUMOURS.

I. *Aqueous Humour.* Hydrophthalmia, or a simple redundancy of the aqueous humour, is a sequel of chronic inflammation affecting the interior texture of the eye. The figure of the globe is preserved, but the distended sclerotic has a dark blue tinge. The cornea is extended and prominent, the pupil dilated and inactive, and vision inconsiderable, if not extinct. In some cases there is loss of figure of the globe, and staphylomatous enlargement of the cornea, which is speckled or exulcerated, frequently presenting fasciculi of red vessels on its surface—the result of acute disorganizing inflammation. The bulged and transparent cornea gives the appearance of redundant aqueous humour; but it is only an increased capacity of the chamber—a distinction of importance, our author thinks, since the treatment of this and hydrophthalmy proceeds on opposite principles.

The aqueous humour is rendered turbid by inflammation of the choroid and iris, resuming its transparency when the inflammation ceases. It is well known that, when discharged by accident or operation, it is reproduced in ten or twelve hours. The solvent power of the aqueous humour over the exposed fragments of the crystalline lens is not, Mr. Travers thinks, superior to that of water, which is very slow. The rapid removal therefore of the fluid and flocculent cataract, when dissipated in the chamber, cannot, Mr. T. thinks, be explained on the principle of the aqueous humour possessing a solvent power superior to common water.

"The fragments of the lens have no more power of resisting absorption than an extraneous substance, and the process improperly termed, solution, is essentially referrible to the operation of the absorbents. The secreting function of the chamber is evidently a powerful one, from the reproduction of the humour in the course of a single night. That the absorbent function is nearly equal to it, is proved by the facts abovementioned, but still more strikingly, by the rapid diminution and removal of the matter effused under inflammation, when quickened by the excitement of mercury." 197.

II. *Vitreous Humour.* The absorption of this humour is evident in cases of floating cataract, and in some forms of organic amaurosis, &c. Mr. T. examined the decayed eyes of horses, and found in many of them the opaque lens sunk in the vitreous chamber, and the vitreous humour almost entirely absorbed, the eye being filled with a morbid accumulation of

aqueous humour. In some cases the globe was greatly enlarged and flaccid, resembling an undistended dropsical cyst, the crystalline being opaque, of its natural size and firm, and sometimes its capsule thickened and scabrous, bearing marks of inflammation, and, instead of the healthy vitreous humour, containing a yellow gellatinous fluid.

The tremulous iris, Mr. Travers believes to be connected with a relative disproportion in volume of the vitreous humour, whether congenital or accidental.

"Couching and the operation by absorption, if roughly performed, break down a portion of the vitreous cells, which become obliterated; hence the frequency of floating cataract and tremulous iris after these operations. The loss of a very considerable proportion of the vitreous humour may take place without permanently impairing the vision, except of minute objects, as is proved by the successful issue of some cases of extraction, in which this accident has happened." 199.

This humour assumes a deep yellow or chocolate brown colour, frequently, in organic amaurosis, with or without cataract, and especially accompanying diseases of the iris. From the rapid and uninterrupted egress, in this and other cases, there is reason to infer that the cellular contexture is broken down, since this uninterrupted egress does not take place in the healthy humour. Mr. Travers has known blood to be effused into the cells of the vitreous humour within twelve hours after the operation of extraction, in consequence of straining on the commode, which was instantly followed by a severe pain darting towards the occiput. The coagulum was visible to both patient and surgeon; the former describing it as a central circular spot, intercepting the light. It was absorbed in the course of time, the patient gradually recovering tolerable vision. In another case, not occasioned by any improper exertion, there was active and continued hæmorrhage, producing excessive distension of the globe, attended with exquisite pain. These symptoms took place on the evening of the day of operation, and on the following day the humour, loaded with an enormous coagulum of blood, protruded at the section. Our experienced author has met with other cases in which hæmorrhage into the vitreous cells occurred in consequence of a blow, followed by inflammation and swelling, with sloughing of the cornea and protrusion of the humour, in the form of a large spongy mass, attended with severe pain in the head for two or three inches round the orbit. The occasional hæmorrhage is profuse, and it is not improbable that, at one period of this disease, its aspect and character have led to the opinion of its being of a malignant nature. The eyeball ultimately sinks, with a total loss of figure.

The vitreous humour is subject to a complete change of con-

sistence, and a total loss of transparency, the texture of its cells, and its volume and figure remaining. It is converted from a transparent albumen into an opaque substance resembling curd. Although the opacity is visible, the appearance differs widely from that of cataract.

"While the crystalline remains transparent, the same bright coloured appearance is seen at the bottom or sides of the eye, which is supposed to announce the incipient medullary fungus. In the progress of the disease also, as in the malignant disease, the lens appears to become opaque, and is protruded so as forcibly to dilate the pupil; this becomes fixed, its edge roughened by detached pigment, and the iris convex, so as to give a conoidal figure to the globe." 202.

Several years ago Mr. Travers extirpated an eye in a fine infant, in whom this disease was supposed to be malignant fungus in its nascent state. The child has grown up healthy, the other eye remaining sound. Upon section of the eye, the vitreous humour presented the appearance above described. The tunics were all entire. Mr. Travers has since seen several cases of a convex and permanently dilated pupil, with a deep-seated opacity of a splendid yellow tint in children; these appearances, to his surprise, continuing stationary for years, unaccompanied by any disorder of the health. He therefore regards these cases as simple and uniform conversion of the substance of the vitreous humour, by an altered action of the secreting vessels, wholly independent of a malignant character. Yet he confesses that, unhappily, we possess no accurate means of diagnosis between malignant fungus and this disease, in their incipient state; nor do we know that the disease may not, sooner or later, take on an active and malignant character, as now and then occurs in the testicle, female breast, and other textures.

"There are, however, two marks of distinction sufficiently strong, between the malignant fungus and this disease of the vitreous humour; viz. the progressive or stationary condition of the disease, denoted by the state of the tunics and the eyeball generally, and secondly, the presence or absence of pain and constitutional irritation. To these I might add, especially as regards children, the affection of one or both organs, as affording a strong presumption that the disease is harmless in the first case; in the second, a conclusion that it is malignant." 205.

It is remarkable that both the disease under consideration, and the malignant fungus of the eyeball, are of most frequent occurrence in infancy. Mr. Travers has not seen the former in the adult.

Crystalline Humour. Excepting in one case, Mr. Travers has not witnessed any other result of inflammation of the crystalline lens and its capsule, than opacity. In this exception sup-

puration took place within the crystalline capsule, after a severe blow on the globe of the eye. Under the action of mercury the pus and lens were absorbed together, the case terminating in capsular opacity, with a constricted and misshapen pupil, and coadhesion of the iris and cornea.

The capsule of the lens will readily unite, when incised, unless a portion of the lens itself intervene. The capsule, when adhering to the iris, receives delicate red vessels, running in peduncles of lymph, produced from the inner border of the pupil. Small flaky portions of the pigment are also frequently detached on the margin of the capsule—an appearance commonly seen in the constricted pupil after chronic iritis, and often the result of reiterated attacks of inflammation, at short intervals, to which a constricted state of the pupil predisposes.

"The iris is much thickened by repeated depositions of lymph, until its texture becomes quite altered. There is a very imperfect and deranged state of vision, according to the degree and extent of opacity of the capsule, which admits of no improvement by the direction of the light; and sometimes a marked and painful determination of blood to the head. Except in this case, and in punctured wounds, the capsule is seldom partially opaque, but though its opacity is diffused, it is often not of uniform density, so that it has a dotted or mottled appearance. When calcareous matter is deposited, it is in small flakes or scales, which have a brighter tint than the opaque membranous portion. The opacity of the capsule, as of the cornea, varies in degree, from the slightest nebula to the opacity from change or conversion of texture. The incipient nebulosity is often, as before observed, difficult of discernment. Where the capsule is completely opaque, the lens undergoes a slow absorption; the capsule, however, remains transparent in most cases of senile cataract, not preceded by inflammation. The capsule, like all other textures of the body, undergoes absorption, when detached." 208.

The fluid, floculent, caseous, and hard cataract, are the principal and distinguishable degrees of density to which the opaque crystalline is subject. On these varieties Mr. Travers has written fully in the fourth and fifth volumes of the Medico-Chirurgical Transactions.

The opacity of the posterior capsule; *i. e.* the tunica hyaloidea, is very rare, which it would not be, Mr. Travers thinks, if the lens were invested in a capsula propria, especially after the operation of extraction, in which the anterior capsule only is lacerated, and the lens allowed to escape. Where it is met with, the lens and anterior capsule are usually transparent; and when this is *not* the case, and the cataract escapes with a posterior fold of opaque capsule, it is always, in our author's experience, accompanied with a considerable discharge of vitreous humour.

Cataract. The formation of cataract, though uncertain, is

usually slow. A cloudy, semi-opaque state, or distinctly nucleated opacity sometimes remains stationary for years, or even for life; yet it *occasionally* forms with rapidity, without inflammation. Generally, however, the rapid formation of cataract is attended with inflammation, or preceded by diseases of the textures. The residence of a perfect cataract in the eye, is injurious—at least it is attended with the risk of destructive inflammation. The vitreous humour undergoes a partial absorption, and the lens, losing a proportional support, bulges forward, and presses upon its capsule and the iris—causing what operators call a narrow anterior chamber.

"Where the capsule yields from a blow or by absorption, and the pupil is dilated by the protruding lens, a violent inflammation, attended with very acute pain, is the invariable consequence. I have known this happen suddenly and independent of external injury, where the formation of the cataract has been gradual, and unattended with pain; and the spontaneous occurrence, though not so frequent, is precisely similar to that produced by the too free laceration of the capsule with the needle." 211.

The absorption of opaque lens is quick in proportion to the looseness of its texture, and its complete exposure, by breaking up and detaching its fragments, to the operation of the aqueous humour, particularly if there be a plentiful healthy secretion of the latter; for a turbid state of it indicates the arrest of its secretion, and *vice versa*. In confirmation of this, Mr. Travers observes that, in all cases of narrowed anterior chamber, by the partial coadhesion of the iris and cornea, consequent on injury or inflammation, the absorption is slow. Absorption does not take place, he says, at all, during the existence of inflammation, in which state the aqueous humour is in a morbid condition; and if the inflammation be deep-seated and protracted, the vitreous humour partakes of it. Mr. Travers has seen a case of dislocated lens occupying the anterior chamber, followed by inflammation of the iris, from which membrane it derived an adventitious capsule organized by coloured vessels.

IV. *Diseases affecting the Eyeball.* Our author properly passes over the injuries, from external violence, to which the eye, in common with all other parts of the body, is liable, as coming within the range of general surgery.

Suppuration of the eyeball follows sometimes (though less frequently than from injury) a long continued and exasperated inflammation of the interior tunics. The globe becomes rapidly enlarged, protruded, and tense;—the conjunctiva, highly tumid and vascular, is rolled out upon the cheek, everting the lower eyelid—the pain is very acute and lancinating through the eye-

ball and head—the patient's health suffers, and the symptomatic fever is considerable. Pus collects in quantity—the cornea turns opaque, and slowly ulcerates or sloughs, giving vent to more or less of the contents of the eye, when the irritation gradually subsides. The eyeball afterwards shrinks up, and the cornea is obliterated. The hypopion or purulent secretion filling the anterior chamber, and originating from internal ulcer of the cornea, is not accompanied by the enlargement, acute pain, or irritating fever, marking abscess of the globe. The result, however, is the same—the perishing of the cornea.

Mr. Travers formerly supposed, what is generally believed still, that the bulb or globe of the eye was liable to be affected with cancer, but he is now of a different opinion—he believes the disease is peculiar to the lacrymal gland, conjunctiva, and eyelids. Soft cancer, however, or as it is sometimes termed, "medullary fungus,"—"fungus hæmatodes," &c. is common to each and every texture, excepting the crystalline and cornea. The early appearances of this formidable disease have been accurately described by Mr. Saunders and Mr. Wardrop. In Mr. Travers's experience it has speedily proved fatal, when arrived at that stage in which the visible enlargement of the ball, livid blue tint of the sclerotica, and distension of the conjunctival and palpebral vessels, present themselves. By these the character of the disease is decided. The staphylomatous protrusions of the sclerotic and choroid coats may be confounded with this disease, unless a careful discrimination be exercised. The complexion, as the disease proceeds, acquires the leaden paleness of cancer, and the rest is broken by deep and lancinating pain. If a child, it is heavy-headed and lethargic, as one affected by hydrocephalus—disturbed by occasional convulsive starts; the stomach often rejecting food; the frame quickly emaciating; and the highest degree of fretfulness and irritability being present. The child usually expires in convulsions. The adult suffers from spasmodic shoots of pain through the head and eyeball, with simultaneous startings on going to rest; but the constitutional disturbance is inconsiderable previous to the protrusion of the fungus, and hæmorrhage, which usually comes on at this period, is exceeding distressing. For numerous pathological details we refer to pages 219-20-21-22.

Pathology of the Appendages. Abscess sometimes forms within the orbit, occasioning, anterior to its discharge, an equal protrusion of the globe, with eversion of the palpebræ, dilated pupil, and suspended vision, which is sometimes lost altogether. Adipose and steatomatous tumours also form in the fatty and cellular textures round the eye, turning and fixing it in an opposite direction, and rendering it dim by compression. Mr. Travers

has removed them in several instances when projecting over the top, or on one side of the globe. When the conjunctiva is freely divided, the fatty tumour is easily hooked forward, and dissected out with a narrow bistoury; but it is not so easy to remove cysts *entire*, which contain a fluid readily escaping on the least puncture. If part of the cyst be left behind, the wound breaks out again and again.

"The encysted tumour, although it extend to the bottom of the orbit, seldom occasions the distortion of the globe. A disagreeable sense of numbness and coldness affects the integument of the glabella and forehead, after the division of the frontal and supratrochlear nerves; these therefore should be avoided in the operation. The tumour sometimes projects exterior to the tarsus, so as to rise upon the palpebra, but more commonly it is beneath the tarsus and contiguous to the globe. In the former case the cyst lies upon the periosteum of the orbit, and is adherent to it; in the latter it is adherent to the globe." 226.

A case occurred in the London Eye Infirmary, where a cyst, containing hydatids deeply seated in the cavity, protruded the eyeball. "The hydatids were evacuated by a puncture in the cyst; the eye returned into its natural situation, and the patient was completely cured." Our author has related a case of aneurism by anastomosis in the orbit, in the 2d volume of the Medico-Chirurgical Transactions; and Mr. Dalrymple a similar case in the 6th volume of the same work.

Exostoses of the orbit are not common. Our author has never seen them in the living subject of a size to create deformity or material inconvenience. Not so polypi, which in their progress burst through the ethmoid and lacrymal bones, sometimes extruding the eyes, so as to occasion the most horrible deformity. For diseases of the lacrymal gland, see pages 228-9.

Facial Appendages. On those little abscesses, denominated "stye," and on warts and vesicles, Mr. Travers makes remarks, and then introduces the subjects of lippitudo, diseased cilia, tinea ciliaris, and trichiasis, for which we must refer to the volume itself. With the following extract respecting ectropion, we shall conclude our analysis of the pathological division of Mr. Travers's work, of which we hope we have presented a fair outline. In our next number we shall analyse the therapeutical and operative portions of a volume which does honour, not only to the author, but to the country to which he belongs.

"The ectropion is the result of injury to the eyelid, as wound, burn, herpetic ulcer, or the sequela of chronic lippitudo. The tarsus of the lower palpebra sometimes falls outward from an apparent loss of elasticity, or the unequal action of the orbicularis muscle. The lid receding from the globe suffers the tears to collect in a pool be-

tween them. An unhealthy state of the conjunctiva is, if not the cause, as when villous and redundant, a certain consequence of its eversion and exposure. The case is much aggravated when coadhesion, after burns or neglected wounds, ulceration from any cause, or long enduring eversion, takes place between the skin of the eyelid and cheek. This case admits of palliation, but not of cure. I have much improved several cases by first detaching the fastened lid and forcing it to heal by granulation, and afterwards, removing a triangular portion of the cartilage, according to the proposal of a modern author, for the correction of the eversion, which is the best remedy for such eversions as do not depend upon the protruded conjunctiva.* In this, which is the simplest case of ectropeon, the excision of the diseased conjunctiva is sufficient. Where the everted lid is adherent to the bone, there is a deficiency of cellular substance to produce granulations, and the case is, generally speaking, slightly if at all benefited by operation." 235.

A History of the Variolous Epidemic which occurred in Norwich in the year 1819, *and destroyed* 330 *individuals: with an Estimate of the Protection afforded by Vaccination, and a Review of Past and Present Opinions upon Chicken-Pox, and Modified Small-Pox.* By JOHN CROSS, Member of the Royal College of Surgeons, &c. 8vo. pp. 296. London, 1820.

(From the Edinburgh Medical and Surgical Journal.)

Much as the attention of our readers has been occupied, for the last two years, with documents regarding the subject of this work, we are confident that they will not regret our devoting a small portion of this Number to an analysis of its contents. It records the ravages of an epidemic small-pox, which has caused a greater mortality, in proportion to the population of the place where it appeared, than any other that has occurred in this country for many years, and much greater than we had hoped the small-pox was destined ever again to cause among the countrymen of Jenner. It furnishes very satisfactory documents to illustrate the protecting power of the cow-pox, and to elucidate other important, although subordinate questions, connected with the history of these diseases; and the industry with which Mr. Cross has collected, and the intel-

* "This remedy results from considering the relative condition of the tarsus and skin at the base of the eyelid, in the two diseases, entropeon and ectropeon. In the first the integument is elongated, in the second the tarsus. As in the first case by removing a portion of the redundant skin we turn out the inverted tarsus, so in the latter by removing a portion of the elongated tarsus, we turn in the everted. It will be understood that it is only relatively that we speak of the elongation of the tarsus. It is everted, and strictured in the state of eversion by the skin."

ligence and judgment with which he has arranged and generalized the most important facts which the epidemic presented, entitle him to the thanks of the profession, and deserve to be generally known.

The absence of small-pox for years together, from various towns or districts of this country, which had been constantly infested with it before the introduction of vaccination, appears to have been owing more to the great diminution of the practice of inoculation for the small-pox, by which the sources of the disease had formerly been kept up, than to the prevalence of the practice of vaccination, by which a number of persons are now protected against the contagion. The town of Norwich, for example, appears, from Mr. Cross's statements, to have been nearly or entirely free from small-pox from 1805 till 1807, again from 1809 till 1813, and again from 1813 till the end of summer 1818, when it was introduced by a girl lately arrived from York with her parents, who had been exposed to the infection on the road, and fell ill of the disease in Norwich. Several cases took their origin from this in the latter part of 1818, two of which were fatal. In January 1819, a druggist inoculated three children for small-pox, thereby helping to keep up the contagion. In February the disease got into one of the great charity schools; from this it extended to all quarters of the city, and "laid the foundation," says Mr. Cross, "for the most extensive destruction of human life that has ever, I believe, taken place in Norwich in the same space of time, from any other cause than the plague."

In this year 530 persons died of small-pox within the limits of the bills of mortality, which do not include several hamlets in the immediate neighbourhood, where it also prevailed. Mr. Cross adds, that having found, by observation derived from various sources, that about one in six of all who were affected with the disease died of it, he is satisfied that "considerably above 3000 individuals, or a *thirteenth part* of the whole population of Norwich, had the small-pox that year."

Mr. Cross addressed a circular letter, containing queries regarding small-pox, to 93 practitioners of the county of Norfolk, and the adjoining part of Suffolk, 82 of whom stated in reply, that they had seen small-pox repeatedly in the year 1819, most of them to a great extent, of which we may judge from the fact, that 28 of the 82 had attended 598 patients in the casual disease, of whom 97 died, and had heard of 180 more deaths in persons whom they did not see, in the districts where they reside.

From these statements it appears that, great as was the number of deaths, the mortality of the disease, in proportion to the numbers affected with it, was not unusual. Of the unprotect-

ed persons seized with small-pox in Scotland during the late epidemic, and of whom Dr. Thomson received accounts, one in four died; and when we take into consideration the practice generally employed at Norwich by the old women who were the most popular practitioners among the poor,* we may infer, that the contagion of the epidemic here recorded was probably less malignant than that which has been lately prevalent in Scotland. It is important to take every opportunity of impressing on the public mind the magnitude of the evil, the antidote of which it is the principal object of the work before us, and of all honest and intelligent practitioners, who interest themselves in the subject, to recommend.

In the present article, we shall lay before our readers what appears to us to be the most important information contained in this volume, as illustrating—*first*, the history of small-pox itself; *secondly*, the protection afforded by cow-pox; *thirdly*, the expediency of public measures to preserve the community from small-pox; and *lastly*, the question of the identity of small-pox and chicken-pox.

I. The history of the epidemic at Norwich exemplified the observation which has been often made,—has been confirmed in this city, both last year and this,—and is highly important with a view to the prevention of the disease,—of its *great increase in the summer months*. "Est ut plurimum epidemicus, verno tempore primo incipiens, æstate crescens, languens autumno, hyeme sequente fere cedens, vere iterum eodem ordine redituras."† Of the 530 deaths, 298 occurred in June and July; and "in June, when the greatest mortality occurred, 43 were buried from small-pox in one week." In like manner, in the town of Lynn, "the small-pox was introduced early in 1819, but did not spread with rapidity until the warm season." The knowledge of this general fact, as we are informed by Dr. Monro, led the Bramins of India to begin inoculating for the small-pox in the month of February; and if the inhabitants of Norwich could have been made duly aware of this fact at the time when the disease began to spread in the year 1819, and had then taken the same measures to insure the protection of all who were liable to small-pox, which they actually took at a subsequent period of

* "The treatment pursued, when not interrupted by professional interference, was, in a few words, as follows: At the commencement, to set the object before a large fire, and supply it plentifully with saffron and brandy, to bring out the eruption; during the whole of the next stage, to keep it in bed, covered with flannel, and even the bed-curtains pinned together, to prevent a breath of air; to allow no change of linen for ten or more days, until the eruption had turned: and to regard the best symptom to be a costive state of the bowels during the whole course of the disease." (P. 11.)

† Boerhaave, Aphor.

the epidemic, the statements contained in the present volume are of themselves sufficient to show, that they would have effectually arrested its progress.

Mr. Cross states farther, what we believe is likewise the general case, that not only "the state of the atmosphere, during May, June, and July, disposed the system to receive the infection on slighter exposure than at any previous period since the introduction of the disease," but likewise "the virulence of the contagion seemed to keep pace with the increasing prevalence of the disease, and to be heightened in proportion to the number suffering from it. The first petechial case which I saw was in the latter end of May. After three or four months, the petechial forms were no longer observable, and the epidemic declined, by getting milder, as well as less frequent."

The epidemic appears to have presented in Norwich, as it did in Scotland, a great many varieties; but there seem to have been a greater number of petechial cases, generally attended with bloody diarrhœa, all of which proved fatal, although Mr. Cross saw several examples of recovery where the pustules assumed a dark or purple hue, from their contents being mixed with blood.

Mr. Cross saw a number of cases of fever with petechiæ, but without any variolous eruption, in the months of May, June, and July, when the epidemic was at the worst, all of which proved fatal. "The victims were mostly children, enfeebled by scrofula, or some other disease;" and, as several were seized with this disease, while others in the same family were suffering from small-pox, and as *no case of it occurred during the summer, in any one who had previously gone through small-pox or cow-pox*, he is very much inclined to ascribe every case of it to the variolous contagion. p. 67.

It appeared in this epidemic, as is usual, that a certain proportion of persons, although fully exposed and unprotected, resisted the contagion. To ascertain this number, as well as other points in the history of the disease, Mr. Cross adopted a plan which we would strongly recommend to others, who may have similar opportunities. He kept a regular register of the effects produced by the contagion in 112 families, comprising 603 persons, into which it was introduced. In these families 297 had had small-pox before, and escaped, 91 had been vaccinated and escaped, excepting three, who had a mild disease, to be mentioned afterwards,—200, who were unprotected, took small-pox,—and 15, although unprotected, escaped, of which number 10 had been likewise exposed to the contagion before, with impunity. A collection of a few registers, kept with equal care, and on the same plan, would weigh more with the future

historian of small-pox and cow-pox, than many volumes of detached observations and general reasonings.

Another fact was likewise completely ascertained by Mr. Cross, which is of very considerable practical importance, and which we do not recollect to have seen so unequivocally demonstrated elsewhere,—that the small-pox occurred, in several instances, in adults, "who had *at various times before resisted* the intimate and continued exposure to the contagion of that disease, and supposed, with some appearance of reason, that they should for ever be free from it." (p. 15.) He states, in farther confirmation of the possibility of this, that his father-in-law, Mr. Bayly, surgeon, had been informed by one of the Suttons, with whom he was well acquainted, that "a man, who believed himself to have had the small-pox, lived for *twelve* years as a nurse in the establishment for the reception of inoculated patients, which the Suttons had near Norwich, continually waiting on the patients who were undergoing the disease; and at the end of that time he caught the small-pox, of which he died."

These facts are important, not only because they point out the danger of trusting to this kind of security against small-pox, but also, because they take away the force of the argument in favour of the supposition of the protecting power of cow-pox wearing out in time, which is drawn from the fact, of vaccinated persons being repeatedly exposed to the contagion with impunity, and nevertheless taking the modified disease on a subsequent exposure, as was the case with the son of Dr. Hennen.* Accordingly, we are not surprised to find it stated by Mr. Cross, and some of his correspondents, that they had seen modified small-pox in vaccinated persons, who had been revaccinated, and also inoculated with small-pox, without effect. pp. 106 and 285.

Mr. Cross gives (p. 16 and 18) two very satisfactory cases of *regular secondary small-pox*, one after the natural, the other after the inoculated disease. Several other supposed cases of secondary small-pox occurred, but the evidence of the nature of the first eruption was not so satisfactory.† Ten of Mr. Cross's correspondents, although not solicited on the subject, sent him information of cases of secondary small-pox, which had occurred to them both before and during the year 1819. Of these, three are stated to have been fatal. (p. 272.) Mr. Cross met also with a few cases, which he conceived to be *modified small-pox after small-pox* (p. 75 and 76); and one of his correspondents mentions four of that kind. (p. 274.) When it is consi-

* See Edinburgh Medical and Surgical Journal, vol. xiv. p. 425.

† In one of these the disease was fatal. The parents of the child had conceived it to be perfectly safe, from the appearance of the previous eruption, which had left several scars.

dered that a much greater number of people at Norwich appear to have been protected by small-pox than by cow-pox, his statements on this head appear to confirm the opinion we formerly hazarded, that this occurrence will be found considerably less common than the modified small-pox after cow-pox.

The only observation of Mr. Cross on the appearance of the eruption of small-pox, which we shall quote, is, that of "vesicles formed of simple elevations of the cuticle, being often intermixed with the most regular pocks," in unmodified cases, "and small incomplete pocks often arising near them, which never present the indented character." (p. 139.) These vesicles we have often seen, and we would add, that they are often filled up two or three days before the principal crop.

II. In regard to the degree of protection given by vaccination at Norwich, the facts here recorded agree very exactly with what has been observed in Scotland. Mr. Cross discovered in all, after "searching for such cases in every quarter of the city, and sparing no pains to examine all reports of such events to the bottom," six cases, in Norwich, where small-pox *ran its usual course in persons who had been vaccinated*, had been seen by medical men during the progress of the cow-pox, and had scars on their arms, which seem in all but one to have had the usual appearance. (p. 59, *et seq.*) Of these six two were fatal, one on the 11th day, the disease being confluent, the other on the 8th day, the pustules being intermixed with many petechiæ. Six of Mr. Cross's correspondents also mentioned having seen regular small-pox after cow-pox, which was recovered from, (p. 281); and five cases were reported to him of fatal small-pox after cow-pox, but there was evidence of the cow-pox having been regular, and left marks, only in two of these. (p. 277.) We mentioned in our review of Dr. Thomson's work, several fatal cases having occurred after vaccination in Scotland, one of which was also a petechial case. Another was likewise anomalous; and of four others the particulars were not ascertained. Dr. Thomson himself had not met with a single case of small-pox after cow-pox, which was not modified; but Dr. Ramsay, of Dundee, Mr. Thomson, of Alloa, and Mr. Dawson, of Liverpool, (three of Dr. Monro's correspondents,) mentioned having seen the small-pox run its regular course, after what had been conceived by medical men to have been perfect vaccination; and we have ourselves seen three cases of that kind, in all of which there was satisfactory evidence of the vaccination having been deemed perfect by medical men at the time when it was performed, and good marks remained on the arms. But we have also seen three cases, in which there was equally satisfactory evidence of regular small-pox having oc-

curred for the second time; and as we know, that the latter occurrence is by no means anomalous, it would be strange if we did not occasionally meet with the former. We agree, therefore, with Mr. Cross in thinking, that the fatal cases he records, "can have no weight against the practice of vaccination, when compared with 10,000 vaccinated individuals living in the midst of a contaminated atmosphere; with 530 deaths among little more than 3000 who had neglected to be vaccinated; and with the occasional occurrence of regular small-pox in those who formerly had the disease."

Cases of *modified small-pox*, *after cow-pox*, have occurred in Mr. Cross's observation, certainly less frequently than in some parts of Scotland, particularly at New Lanark, (see our number for April, p. 228,*) but probably as frequently, in proportion to the number exposed to the infection, as in Edinburgh. After deducting a certain number of cases of eruptive disease, which he conceives to have been chicken-pox, Mr. Cross has notes of more than thirty cases, which he is satisfied were modified small-pox (p. 82); and upwards of 100 cases of the same kind were mentioned to him by his correspondents. (p. 280.) In regard to the proportion of vaccinated persons exposed to the infection, who take this disease, he professes himself unable to speak with confidence. Of 91 vaccinated persons in the 112 families to which he paid particular attention, three had eruptive complaints at the time of his attendance, two of which he judged to be modified small-pox, and three more had probably the same disease towards the end of the year (p. 36); and, of 420 other vaccinated persons, 11 had eruptive complaints, most of which were probably of the same nature. (p. 38.) In all, he thinks, "not more than one in twenty persons will be in any way affected by the most intimate exposure to small-pox, and less than one in fifty will have the disease in a form answering to the generally received description of modified small-pox." He observes very justly, that, "at the present day, no documents can possess much value, unless they help to ascertain the proportion in which the vaccinated are likely to be affected by small-pox contagion. If this object is not kept in view, a writer may collect instances of failure or of protection, without answering any other purpose than to show the possibility of the one or the other, and without establishing which is the general rule, and which the exception."

M. Cross devotes a larger portion of his work than we should have thought necessary (p. 77 to 122, and p. 182 to 192) to a circumstantial account of cases, and afterwards to general descriptions, of this modified small-pox, of which we do not think it necessary to say more, than that these statements agree per-

* Eclectic Repertory, vol. ix. p. 274.

fectly with those which we have already inserted in different numbers of our Journal. The 15th case (p. 106) is a striking example of the most important of all the peculiarities attending this form of the disease, the absence of secondary fever. The only remark we have to make on these descriptions is one which applies to those of many other medical men, who have become authors since the discrimination of cutaneous eruptions has been an object of more study than formerly,—that the appearances of the eruptions are detailed with a degree of minuteness which is not only unnecessary, but in some instances oppressive; while too little attention is paid to the symptoms of the general fever.

In fixing the characters by which this form of the disease may be certainly known, Mr. Cross lays much stress on the *indented character* of the pocks, seen not in all, but in some of them, on the 2d, 3d, or 4th day of the eruption, while the fluid is clear, and *before any crusting begins*. This character, he says, is to be seen in most cases of the disease, and in all in which the eruption has been abundant, or the symptoms urgent. Hence, although he does not conclude that every eruption which does not show this character *is not* small-pox, he concludes (we believe quite correctly) that every one which does show it *is* small-pox. In some milder cases, the vesicles "have never advanced so far as to present indented pocks," and have dried up in three or four days, without forming regular solid scabs; in several cases the rash has preceded or accompanied the eruption of modified small-pox; "and the mildest effect of the variolous contagion seems to be shown in the production of a rash and sore throat, without any eruption of vesicles, or of febrile symptoms for a day or two, that subside without the appearance of any affection of the skin." All this agrees perfectly with our own observations.

Mr. Cross quotes an account of an epidemic small-pox in the kingdom of Wirtemberg, in the years 1814, 15, 16, and 17, collected and arranged by Dr. Elsasser, after an examination of all the official returns of the medical men to the government, by which it appears, that precisely similar effects have been produced there as in this country, by the contagion of small-pox acting on the vaccinated.

"A few cases of regular small-pox after vaccination are allowed to have occurred: but, while tens of thousands of the vaccinated escaped, two only were ascertained to have died of the small-pox, who had been registered as having passed properly through the cow-pox. The variolous contagion, acting on a small proportion of the vaccinated, produced a mitigated or modified disease—the eruption not attaining more than half the size of the regular small-pox, being irregular as to appearance and progress, presenting in some pocks the indentation, unattended by secondary fever, and leaving blotches with convex surfaces on the falling off of the scabs. The interval between

the vaccination and the occurrence of this eruptive disease varied from five to fifteen years, and was seldom less than the former number." —P. 180.

Precisely similar facts were observed in an epidemic small-pox which occurred at Rotterdam in 1817-18, and is described by Dr. Hodenpyl. (P. 178-9.)

We presume none of our readers can think it necessary for us to consider the question, whether the eruptions thus described proceeded from the contagion of the small-pox or not? We may merely mention, that Mr. Cross and some of his correspondents resorted to the unequivocal proof of inoculating unprotected children with the matter of this eruption, and thereby produced in them regular small-pox. (See p. 84, 87, and 284.) The results of these trials, of those of Dr. Hennen and others recorded in Dr. Monro's work, (chap. vi.) and of some similar ones made in London, (see Medical Repository, Vol. XIII. p. 228,) are amply sufficient to set this question at rest for ever.

In regard to the question, whether the power of cow-pox over small-pox is diminished by time? we have not so precise information, either in this or in any other of the late works on the subject, as might perhaps have been expected. All that is here said on the subject amounts to this,—that the modified disease has been seen at all distances of time, from a few weeks up to 20 years after vaccination; that the severest cases of it have been more than six years after it, (p. 198, 199, and p. 284, 285;) but that, at the distance of 14 and 20 years, the modifying power was unequivocally shown, particularly by the absence of secondary fever, and the rapid convalescence, notwithstanding the great load of eruption. Three interesting cases illustrating this point, are given at great length. (Nos. 14, 15, and 16, p. 101, *et seq.*)

Mr. Cross has made some observations, which are both new and important, on small-pox and cow-pox occurring together in the same individual. (Chapter iii. Part 1st.) It has been generally supposed, that when the areola has formed around vaccine vesicles, the constitutional effect is produced, and the patient is as effectually protected against small-pox as he will ever be. It was known, that the eruption of small-pox appearing within two or three days after vaccination arrests the progress of the vaccine vesicle, prevents the formation of the areola, and proceeds in its own progress without modification. In most cases, where the eruption of small-pox has come out at a later period of the progress of cow-pox, it has been much mitigated; and the sixth day after vaccination has been stated as the latest at which small-pox can appear, and afterwards run its regular course. Mr. Cross, however, although he found that small-pox coming out late in the progress of the vaccine vesicle was *gene-*

rally modified, (thirty cases having occurred to him without one death,) yet has given three cases, seen by himself, and a fourth, seen by a friend, in which small-pox appeared on the 9th, 10th, 11th, and 12th day after vaccination,—that is, *after* the areola had formed,—yet run its regular course, and in the last instance (seen by his friend) was fatal.* Although, therefore, he most justly recommends to surgeons to vaccinate in situations where it is possible that the variolous contagion may have been already caught, as the small-pox, if not prevented, is *most likely* to be mitigated; yet he warns them, that no decisive opinion of protection by cow-pox can be given until the scab is about to fall off. And he very properly observes, that the mind of every surgeon, who vaccinates in these circumstances, should be strongly impressed with the possibility of small-pox coming out late in the progress of cow-pox, running the usual course, and even proving fatal, notwithstanding that the cow-pox is going on regularly and properly; otherwise such a case may very probably be "mentioned as a failure of vaccination, and become the source of much injury to the public."

In regard to the important question of the cause of the occurrence of modified small-pox in a portion of vaccinated persons, Mr. Cross inclines to the opinion, that it may depend on incomplete vaccination. In illustration of this, he gives a very instructive table (p. 30) of the progress of cow-pox in 500 persons whom he vaccinated, from which it appeared that 384 of these only were ascertained to pass through the disease satisfactorily. In 16 the vesicles were injured, and the natural progress of the disease stopped or altered. In 12 the appearance of the disease was deemed imperfect, independently of external injury. In 35, reiterated insertions of the ichor failed to produce a vesicle.† In 29, small-pox appeared; and 24 did not return. From this he concludes, that

"Incomplete cases of the disease, from rubbing, accident, or other causes, will, among the poor at least, *happen in as great a proportion* as modified small-pox in those who are subsequently exposed to the contagion." He adds, that "besides the interruption of the vesicle by rubbing, or the extraction of too much ichor, numerous other

* P. 47—55. It is observable, that, although the areola was not perceptibly lessened in these cases by the influence of the small-pox, yet the local effect of the cow-pox had been altered; for in the three patients who survived, the characteristic cicatrix did not remain on the arm.

† Mr. Cross remarks on these, that we should not decide hastily that a person is incapable of receiving the cow-pox, adding, that he had succeeded in producing one vaccine vesicle in a child, at the *sixth* attempt, after having made four punctures each time, and in every trial but one used ichor transferred immediately from a perfect vesicle; and he mentions one fatal case of small-pox, which might probably have been prevented by similar perseverance on the part of the surgeon, the child having been previously repeatedly vaccinated without effect. p. 90.

causes may interfere with the progress of the vaccine pock, which may be disregarded at the time, and subsequently, in the absence of a register, forgotten, particularly diseases preoccupying the system at the surface of the skin." "Elsasser (of Wirtemburg) mentions, that in a district where scabies was so endemic, that not above one in fifty was free from it, numerous cases of small-pox, both modified and regular, occurred in the vaccinated, and on inquiry, it was found that a child with scabies had been vaccinated, from whom ichor had been taken, which produced an irregular and imperfect disease. An author, who recently undertook an investigation of the causes of failure of vaccination in Silesia, has related, that, in 1816, above 100 who had been vaccinated had small-pox, in the same district, and some of them died. It appeared that they had all been vaccinated by one surgeon, who was suspended from his office as vaccinator, while an inquiry was instituted by a medical committee, expressly appointed. It was ascertained that the surgeon had been in the habit of taking ichor as late as the tenth day, often from vesicles that had been rubbed or scratched, and had even raised an imperfect scab, to obtain what moisture he could from beneath it, to vaccinate with." p. 196.

We quote this passage at length, because we are strongly impressed with the importance of surgeons taking pains to procure perfect vaccine vesicles, and keeping registers of the cases they vaccinate. That some cases of failure of vaccination to protect against small-pox have been owing to imperfection of the process, no one can doubt; and at all events, minute attention to this point can do no harm. But if it is meant to be inferred, that *all* cases of modified small-pox can be ascribed to imperfect vaccination, or that any marks are yet known, by which we can distinguish a vaccine vesicle, or set of vesicles, that can be safely asserted to be an infallible preservative against small-pox, we assert with confidence, that this inference is in direct opposition to evidence which we already possess. And without reverting to the statements contained in our Review of Dr. Thomson's work, on this part of the subject, we see enough in Mr. Cross's own book, to bear us out in this assertion. For although he has shown, that in a given number of vaccinated persons *as many* present appearances of irregularity in the progress of the cow-pox, as are liable to modified small-pox afterwards, yet there is not only no proof, in his work, that the persons who take the modified small-pox are the same as have gone through the cow-pox somewhat irregularly, but there is proof that, in many instances, they are *not the same.* "The regular small-pox," he says, "may occur, and even prove fatal, after regular cow-pox," several instances of which were already given. "The modified small-pox has frequently been met with in those who had two scars from the cow-pox. I have known it where there were three, and others have met with it

in those who had four, or even five scars." (p. 195.) Of the 14 cases of modified small-pox, which he details, (p. 77, *et seq.*) there are four, in which it is expressly stated, that the scar left by the previous vaccination was perfect, such, as Mr. Cross (from his statement at p. 63) seems to think, must have proceeded from the vaccine pock having gone through its different stages quite regularly; in five others, the scar, although small, is mentioned as being indented or foveolous; and what is still more decisive, it appears from a very important table given by Mr. Cross at p. 37, that of 57 vaccinated persons, who escaped entirely, notwithstanding "the closest exposure to the most virulent contagion," there were no less than 17, in whom the scars left by the vaccination were as exceptionable as they were in any of the cases where the modified small-pox appeared; having been small in eight, small and shining (instead of foveolous) in three, and *scarcely perceptible* in six. Of the 57, only 19 had more than one scar. Mr. Cross himself has been protected by vaccination 20 years ago, which has left only one shining (*i. e.* irregular) scar on one arm. It has frequently happened at Norwich, in short, just as it has in Scotland, that vaccination which, as far as we know, was perfect, has given imperfect security, and that vaccination, which we should conceive to have been imperfect, has given perfect security; and no medical man can therefore be justified in promising that any vaccine vesicle, or number of vaccine vesicles, however regular, will afford certain security against modified small-pox.

That this affords no argument whatever against universal vaccination, must be obvious, we think, to any one who reflects, that vaccination, if not so good an antidote against small-pox as it was once thought, is at least the best that is to be had. And that this is the state of the fact, no one can reasonably deny, who considers for a moment the protection that was actually given in the city of Norwich to 10,000 vaccinated persons. Of these we have seen that only two died of the small-pox, when a virulent epidemic visited the city, and affected almost every one who was liable to the contagion. Had these persons been protected by variolous inoculation, conducted in the best manner, and in the most favourable circumstances, at least 33 of them (1 in 300) would have died of the process intended to protect them; so that, in comparing the advantages of the two methods of protection, we have to weigh 33 deaths *certain*, against two, *contingent on the invasion of an epidemic small-pox*, and then we have to consider, whether there might not be nearly as great a chance of two persons out of 10,000, inoculated for small-pox, taking fatal small-pox on exposure, at a subsequent period of life, to a virulent contagion.

III. This is the chief consideration to be urged with those parents who may hesitate about the mode of protecting their own children against small-pox. The still more important consideration, that no one can be protected against the natural small-pox by variolous inoculation, without the strongest probability of his communicating the disease in its worst form to others, is one that ought to be urged, not to the parents of the children, but to the government of the country; and we were not aware, till we read Mr. Cross's book, that so strong a case existed for the interference of the Legislature. It is quite obvious, that as long as inoculation for small-pox is permitted, any measures to prevent the diffusion of the disease must be absolutely nugatory. In Scotland, we believe that the practice is now nearly abandoned; and the general diffusion of the small-pox is to be ascribed merely to neglect of vaccination among the poor, partly owing to habitual indolence, and partly to a mistaken notion of the religious duty of resignation to the Divine will. But in Norwich, it appears that

"Variolous inoculation was practised on more than 400, each of whom thus became a centre of contagion," (p. 13); and in the whole of the neighbouring country, "itinerant inoculators, irregular practitioners, and old women, introduced and extended the disease to all quarters by inoculation; regardless of the admonitions given them, because the law authorized no direct measures against them. The disease was thus continually introduced into parishes previously free from it; and these consequences of the practice were made the subject of a representation to the Grand Jury, some of the magistrates of which body attempted, *without success*, to inflict punishment on the ignorant persons who wantonly committed so great an injury against the public. Many medical men, desirous of doing their duty by discouraging variolous inoculation, have been placed in the most unpleasant situations, and not unfrequently have been compelled to commit an act which they believed to be immoral and injurious, because they could not afford to sacrifice the small emolument arising from it; *some have reluctantly inoculated whole parishes of the poor, at the instigation or order of an overseer*, who probably did not know but the cow-pox was as contagious as the small-pox. It is lamentable indeed, if the legislature cannot interpose to correct evils and abuses, the existence of which has been felt and acknowledged by a very great proportion of the community." p. 219.

Of the danger to the individuals themselves of variolous inoculation, particularly when practised by the ignorant persons abovementioned, Mr. Cross's Appendix contains the following proof:—"38 country surgeons who from various motives practised it, lost among those to whom they had thus given the disease, 21 patients; 14 surgeons reported that 55 deaths had been occasioned in the same way, within their knowledge; and five other surgeons observed, that they had known several who fell

a sacrifice to the practice." (p. 272.) The number of the unprotected persons, to whom the contagion was communicated, in consequence of the practice, cannot of course be ascertained with the same precision; but nine of the surgeons, to whom Mr. Cross addressed his circular letter, reported to him that

"The disease had been introduced into parishes, in which it did not before exist, by variolous inoculation. One surgeon states, that from the first person who casually fell down with small-pox in his neighbourhood, *forty* were immediately inoculated, spreading the disease in all directions. Another, that in four parishes out of five, where he had attended variolous patients, the contagion was brought by an irregular practitioner, who went about inoculating. A third, that a child went to an adjoining town to get inoculated, and became the centre, whence the contagion spread to the parishes under his care. A fourth states, that before the present year, he had repeatedly been able to prevent the spreading of the disease beyond the family where it originated; but that lately a man of bad character, and not at all acquainted with medical subjects, had for a small gain made it his business to extend the disease far and near. Mr. Dix, of Snelburgh, found the small-pox in nearly all of the 42 parishes which he superintends, and to many of them it was conveyed by inoculation." p. 269.

Strong as are the objections to all legislative interference with the private concerns of individuals, which cannot be proved to be necessary to prevent injury to the public at large, we think no one who believes the state of the facts to be as we have now represented them,—that a parent who has his child inoculated for the small-pox, gives him a much less chance of escaping with his life, than he would have done by vaccinating him, and at the same time commits a grievous and incalculable injury upon his neighbours, which vaccination wholly avoids,—can hesitate to give his assent to Mr. Cross's proposition, that

"A law should be passed, prohibiting variolous inoculation, by a severe penalty, except under the following circumstances,—where small-pox is already in the family,—where it breaks out in a family, and vaccine ichor cannot be obtained within two or three days,—where the individual is believed to have previously passed through cow-pox or small-pox,—or where vaccination has been already practised without effect." p. 223.

Mr. Cross adds another exception, "where the patient is wholly secluded, so as to prevent the possibility of the disease spreading." But we think it may well be doubted, whether it is expedient for the legislature to yield so much to the unfounded prejudices of an individual, as to allow of this exception, particularly as it must be impossible to make any municipal regulations, which shall secure perfect seclusion, in all the situations where persons may wish to submit to this kind of inoculation.

Mr. Cross recommends likewise, that persons who may ca-

sually contract the small-pox, should be "insulated, either in their own houses, or in buildings or rooms appropriated for their reception, and prevented by penalty from exposing themselves abroad, before the period is past when they are capable of communicating the infection." To this proposal our only objection is, the utter impossibility of executing it, without a much more efficient superintendence of these matters by magistrates and police officers, than we have any reason to expect they will ever exercise. There is another suggestion, however, to which this objection does not apply,

"That the parents, nurses, or medical attendants of any individual discovered to have this pestilential disease, in any court, street, town, or parish, where it did not before exist, might be required, under a penalty, to give information of the same to a magistrate, who should be provided with a regular form for proclaiming the situation and nature of the contagion, the dangers attending it, and the means of avoiding it." p. 221.

To this we would add, that we can see no objection to the legislature acting on the suggestion long ago made by Dr. Ferriar,* "that *the keepers of lodging-houses should be subjected to licenses, which would bring them under the superintendence of the magistrates.*" This, we are satisfied, from our own experience as well as that of others, would conduce very greatly to check the diffusion of this and other epidemic diseases, which are introduced into towns by beggars and vagrants; and very often spread from the low lodging-houses which receive them, as from a centre.† If there were, as there might easily be, in every considerable town, permanent accommodation for the reception of a few patients in febrile diseases; and if the keepers of lodging-houses were liable to the loss of their licenses entitling them to keep such houses, if they did not give timely information to medical men, of every person falling sick in their houses, this evil might be effectually controlled, without a greater degree of exertion, on the part of magistrates and practitioners, than may be reasonably expected.

If public intimation were thus given of the small-pox appearing in any town, the first object would of course be, the immediate vaccination of all unprotected persons; "and it would be," says Mr. Cross, "very consistent with the most liberal government, to direct magistrates, guardians of the poor, and parish overseers, how they may best proceed, and proclaim the appearance of small-pox in any district, with the laws respecting it, and the preparatory steps to a general vaccination." Of the good that may be done by such measures for promoting this ob-

* Proceedings of the Manchester Board of Health, p. 12.

† See Reports of the Committee of the House of Commons on the Fever in Ireland, *passim*.

ject as are perfectly consonant with the spirit of the constitution of this country, the following fact, from the work before us, affords a striking example.

"An individual falling down with the small-pox in June, in the borough of Thetford, containing about 2100 inhabitants, Mr. Bailey, surgeon, gave information of it to the mayor, who immediately called a meeting of the inhabitants, and from the able way in which the measure was advocated, vaccination was immediately determined on. The parish officers visited every house, made a list of all those liable to the contagion, and threatened to expose any individual who should refuse vaccination, or submit clandestinely to variolous inoculation. The list thus made was delivered to the two surgeons, and the bellman was employed to announce the hour on the following morning, at which all those requiring it might be vaccinated at the churches of their respective parishes. These prompt means were successful; about 200 were vaccinated, most of them in the course of two days, and were thus protected perfectly from small-pox, which extended only to eight or ten persons, all of whom survived." p. 267.

It is in the history of more despotic countries, that we are to look for exemplification, on a large scale, of the national advantage derived from general vaccination. From a statement furnished to Mr. Cross by Dr. Gordon, and which he had obtained from an extensive statistical work just published in Denmark, it appears that "since 1808, the small-pox no longer exists there, and is wholly unknown." In the *city of Copenhagen alone*, 5500 persons died of small-pox between 1788 and 1800, when vaccination was introduced; whereas the number that died of it in the *whole Danish dominions*, from 1802 till 1818, was only *one hundred and fifty-eight*. It is there the law, that all persons shall be vaccinated, and the bishops and magistrates are required to take care that no one be received at confirmation, permitted to marry, admitted into any school or public institution, or bound an apprentice to any trade without complying with this injunction. "An annual report is published of the results of vaccination, which is judged to have been adequate by comparison with the numbers of births and burials." (p. 241.) A still more striking instance is furnished by the principality of Anspach in Bavaria, in which, as appears by a table given by Mr. Cross at p. 248, more than one-fortieth of the population, that is, probably almost all the children that live to the age of six months, are vaccinated annually. In this district, in the year 1809, there were four deaths from small-pox, and since then, up to the end of 1818, not one had died of it. The deaths by small-pox in this district, in the years 1797, 1798, 1799, were above 500 annually, and in 1800 no less than 1609; and what makes this instance particularly satisfactory, the small-pox prevailed epidemically, and to a great extent, during 1814.

1815, 1816, and 1817, in every part of the immediately adjoining State of Wirtemberg. (p. 245.) In Prussia, in which the deaths from small-pox, before vaccination was introduced, were 40,000 annually, they were under 3000 in the year 1817, although the population has been considerably increased by an accession of territory; and in the department of Breslau, containing above 500,000 inhabitants, and in which one-twenty-eighth of the whole population were vaccinated in the year 1818, although small-pox was introduced in the course of that year, in nine different places, yet in consequence of the extensive vaccination, and of insulating all who fell down in the disease, only 28 in all took it, and of these 6 died. (p. 244, 245.) It is painful to contrast these undeniable proofs of the power that we possess of resisting the invasion of small-pox, with the example now before us, where "530 lives were, in less than a year, sacrificed to this disease, in an enlightened city, where humanity abounds, and charity seeks for every measure to prevent and relieve distress."

Mr. Cross thinks that some advantage might be derived from having more than one national vaccine establishment, to supply lymph, (as that in London does, on an application being made, in an enclosure addressed to the Secretary of State for the Home Department,) free of expense to all parts of the kingdom. He recommends also a modification of the English poor-laws on this subject, which seems very necessary, to entitle the poor to be vaccinated at the expense of the parish in which they reside, and not of that to which they belong. But what he chiefly, and considering the habits and feelings of all ranks in this country, we believe justly, relies on, is the establishment of charitable associations for the diffusion of cow-pox; and he proposes a plan for the regulation of these, which we think deserving of the attention of our readers, although some simplification of it seems to us to be desirable, and perhaps necessary, before it is reduced to practice.

"An establishment should be formed in every town and populous district, supported by annual contributions, the amount of which should at least be sufficient to procure a house, where all applicants may be vaccinated on certain days of the week, and to answer the expenses of a general census, in order to ascertain the numbers of those who require to be vaccinated. This census ought to be taken in the spring of every year, and each of the medical men who choose to be connected with this institution, and to offer their services, should engage to visit and to vaccinate all those desiring it at their own houses."

It should be a part of the object of this society also, he thinks, to get the earliest information of the introduction of the small-pox, and to provide a building for insulating those who fall

down in the disease. The heads of families, he adds, should refuse to take into their houses servants liable to small-pox:

"And it should be a standing regulation of all charity schools, and extensive institutions for the reception of children, that none be admitted but those that have had small-pox or cow-pox. This law existed and was acted on in a large establishment of the kind in Norwich, but the long absence of the small-pox brought the regulation into neglect, and the consequence was that many died of the disease, and a portion of the benefits to be derived from the institution was lost to the public." p. 237.

IV. Mr. Cross evidently inclines to the old doctrine, that chicken-pox and modified small-pox are separate diseases, although he expresses it, as every one ought to do in the present state of the inquiry, as a probable rather than an established opinion. The name most commonly given, in his neighbourhood, to the vesicular disease, which he thinks may be distinguished from any form of small-pox, is crystals or water-pox; and the following are the facts, which he has observed in regard to this eruption, which seem to bear on the question.

He gives, at p. 71, as a characteristic specimen of this disease, the case of a young lady, whose symptoms any one that takes the trouble to compare the descriptions, will find to be just those which Mr. Bryce and Dr. Abercrombie regard as characterizing the vesicular disease, to which they conceive that the name of chicken-pox ought to be restricted. In our number for April, we observed, that "if these gentlemen are right in their opinion regarding this disease, eruptions answering to this description will be farther distinguished by the following marks," in enumerating which we shall annex quotations from Mr. Cross's book, to show how completely his experience, so far as it goes, coincides with theirs.

"1st, They will always give rise to eruptions similar to themselves." (Review.) "I have never met with these eruptions, rising into large pellucid vesicles, in those families where others had the small-pox. The disease is very contagious, but it seems to maintain its own character in being communicated from one individual to another." Cross, p. 74.

In a private communication, with which Mr. Cross has favoured us on this subject, he says,

"I never found it in the same house with the small-pox, nor did I ever know it occur in a family where small-pox shortly afterwards made its appearance in those of the family who were not protected against it. My experience on these points corresponds precisely with that of several other respectable and observing medical men in this town."

"2dly, They will affect indiscriminately those who have had cow-pox, those who have had small-pox, and those who have had neither."

(Review.) Mr. Cross's general character of these eruptions is, that they "seem to have occurred indiscriminately in those who had passed through small-pox or cow-pox, and in those who had not had either of these disorders." p. 70.

The greater part of Mr. Cross's patients, in this disease, appear to have been vaccinated persons, but he had seen in it two unprotected children, whom he afterwards vaccinated; and he "watched every step of the disorder in a boy who had, within six weeks recovered from the small-pox, and whose body was still marked with the plum-pudding spots, from a numerous burden of the eruption." p. 78.

"3dly, They will furnish no protection against the future contagion of small-pox." (Review.) "I have not witnessed the progress of this eruption in any child which subsequently had the small-pox, but I have reason to believe that such an event has occurred." Cross, p. 74.

In the private communication above mentioned, he says,

"I met with regular and severe small-pox in two children whom I believed (from the history given me by their parents, and the appearance of the scars produced by it) to have had the vesicular eruption a few weeks before." Besides this, three children, whom he attended in modified small-pox, had, at different periods since vaccination, "had an eruptive disease which the physician attending called water-pox." p. 77.

The following case, from Dr. Hodenpyl's account of the epidemic at Rotterdam, is still stronger: "Two vaccinated children, and one unvaccinated, in the same family, all had the water-pox. A month or two afterwards, one of the two formerly vaccinated had an eruptive disease," which was judged to be modified small-pox. p. 179.

"4thly, They will hardly ever be confluent, or dangerous to life." (Review.) "Complaints of this kind have been unattended with danger." (Cross, p. 70.)

Another fact, stated by Mr. Bryce and Dr. Abercrombie, to support the doctrine of a separate disease, was the regular progress of vaccination after the vesicular disease was completed. Six cases of this kind were mentioned in our Review of Dr. Thomson's book, and we have since seen three more. Mr. Cross "vaccinated two children with perfect success shortly after he had seen them with this disease, which, in both of them, had left several light-coloured scars;" (p. 74.) and Dr. Hodenpyl had the same success in one case. p. 179.

In his private letter to us, Mr. Cross says, "I have seen neither small-pox nor modified small-pox in Norwich since this year commenced, but I have seen two cases of the vesicular disease," the origin of which, however, he could not trace.

We have seen a very recent letter from Dr. Howitz of Copenhagen, in which he states, that although small-pox is at present unknown in Denmark, they have occasional visitations of what they call chicken-pox, always without danger; and we can hardly suppose that vaccination has been so very general, even in that country, as to leave none capable of going through the small-pox regularly, if the contagion really exist among them. We have ourselves seen the vesicular disease in one family in the course of the summer, where it presented exactly the same phenomena as in the families mentioned on the authority of Mr. Bryce and Dr. Abercrombie, in our former number. (p. 256.) The first case of it that was seen, in a vaccinated child, was pronounced to be chicken-pox, and not modified small-pox; and afterwards it was found that the eruption had already appeared on one *unprotected* child in the family, in whom it presented the very same characters, and was formed into crusts within four days. We have also seen this vesicular disease in five children, all of them unprotected, living in the same house; and had the satisfaction of observing, that in all of them it followed exactly the same course, and there was no vesicle in all the five, which was not formed into a scab within four days from its appearance.

We mentioned in our former review, that we had seen the contagion of true small-pox produce, in the unvaccinated, particularly in very young children, an eruption which was merely papular and vesicular, forming into crusts within four or five days; but we added, that this was rare, and that the appearance of these vesicles, when seen sufficiently early, was, so far as we had observed, *clearly distinct* from that of the vesicular eruptions to which Mr. Bryce restricts the name of chicken-pox. We cannot resist the pleasure of quoting from Mr. Cross's private letter his testimony in favour of the correctness of that statement:

"I acknowledge that one of the defects in my short treatise is, my not having described the mildest form which small-pox assumes in the unprotected; but if I had described it, I should not have made it the same as, nor indeed very similar to, the mild vesicular disease commonly called crystals or water-pox."

Mr. Cross proposes to apply the generic term Varicella both to the modified small-pox, (or the mildest small-pox just mentioned in the unprotected,) and also to the vesicular eruption described by Mr. Bryce; and the following sentences, which are the chief parts of the definitions he gives of these two species of varicella, will show the manner in which he distinguishes the two. The only particular that is new is the circumstance of the vesicle of the latter disease being only one cavity, that of

the former several; and this we believe to be both just and important.

"*Varicella Cellulosa.*—The fluid of the eruption contained mostly in separate cells; the pocks often depressed in the centre, but sometimes presenting only conoidal and firm vesicles, placed upon a thickened basis of the cutis; incrustation taking place, without secondary fever, at various periods, from the third to the seventh day; scabs mostly flat and circular, and, on falling off, leaving tubercular elevations, or convex surfaces of the cutis. Produced by the variolous contagion.

"*Varicella Bullosa*—The fluid *every where** contained in vesicles composed of one cavity; the covering of the contained fluid delicate and easily broken; drying into small irregular crusts from the third to the fifth day, and, on falling off, leaving in every part a plane surface of the cuticle;† rarely leaving pits, except from scratching. It is doubtful if this eruption proceed from the variolous contagion; certain that it does not give rise to small-pox; and that it maintains the same character in all classes, whether occurring before or after cow-pox or small-pox." pp. 207—209.

We are sorry to close our account of a work, in which we have found so much to praise, with an expression of disapprobation; but to this arrangement we cannot consent. We perfectly agree with Mr. Cross that the name varicella has been very often given to both kinds of eruption; but we are quite clear, that the former disease (by whatever specific name it may be designated) ought to have the generic title of Variola; and that the separate generic name should be given to the latter, unless it shall be proved hereafter to proceed from the contagion of the small-pox. If there is any principle in nosology which is fixed and invariable, we apprehend it to be this,—that two cases of disease, which spring from the same contagion, and either of which is capable of engendering the other, ought to be referred to the same genus; and that cases, which are believed to spring from different specific contagions, and neither of which is thought capable of engendering the other, should be referred to different genera.

Highly as we approve of the zeal and ability which Mr. Cross has shown in this work, we cannot close it without remarking that there are evident indications of haste in the composition of it. We were somewhat offended by various collo-

* This is important, because in *regular* small-pox, as before observed, and in some cases of modified small-pox also, a certain number of such vesicles appear, mixed with the general and characteristic eruption.

† This we think too strongly expressed, and, at p. 201 also, Mr. Cross speaks too confidently of being able to distinguish the eruptions in their later stages. (See Review of Dr. Thomson, p. 253.) In cases of difficulty, we are satisfied that the eruption must be seen early, in order that it may be known with certainty.

quial and inelegant phrases, (particularly by the ungrammatical expression, a patient *coming out with* an eruption;) and, what is more material, the arrangement of the work appears to us by no means fortunate, and its length unnecessarily great. We mention these defects with the less hesitation, as we are persuaded that a little reflection would enable the author to correct them in a future edition.

A View of the Elementary Principles of Education, founded on the Study of the Nature of Man. By J. G. SPURZHEIM, M.D. &c. Constable and & Co. Edinburgh; and Hurst, Robinson & Co. London. 1821. 8vo.

(From the New Edinburgh Review.)

Since we last adverted to the subject of phrenology,* its doctrines have been rapidly diffused, and the believers in them have increased. About a year and a half ago, a society was established in this city, for the cultivation of the science, and has printed and distributed a report of its proceedings. The report bears, that "the existence of this society implies a belief in the members, that the brain is the organ of the mind; that particular parts of it are the organs of particular mental faculties; and that these facts afford a key to the true philosophy of man." We are informed by it, that "the society was instituted on 22d February, 1820, and the gentlemen assembled on that day, resolved, 1st, That they shall form themselves into a society, which shall be denominated *The Phrenological Society of Edinburgh;* and, 2dly, That the object of the society shall be to hear papers, and to discuss questions connected with Phrenology; to hold a correspondence with societies and individuals, who may take an interest in the system; and thus to collect and to preserve facts and views that may improve and enlarge the boundaries of the science."

The report mentions the essays which were read, and the communications which were made to the society, during the two sessions; and points out several objects as deserving the attention of the members during the recess. A list of the members is annexed, and we perceive that the number, which is exactly fifty, embraces gentlemen connected with the church, the professions of medicine and law, persons devoted to general literature, and artists.

* See the notice of Sir George Mackenzie's work, in the Edinburgh Monthly Review for January, 1821, where, and in the number for February, 1820, Article *Essays on Phrenology*, the history, general nature, and merits of the system, as well as various objections to it, especially its supposed tendency to materialism, are particularly treated.

In one of the numbers of our former work, the Edinburgh Monthly Review, we ventured to hazard a more favourable opinion of phrenology than had been generally expressed by our cotemporaries. The remarks then made were the result of a serious consideration of the subject. Since that time we have extended the sphere of our observations, and have found reason rather to regard the science with increased confidence and respect, than to abate our estimate of its merits. We have seen so many striking instances of concomitance between particular mental powers and particular forms of cerebral development, and especially in extreme cases both of endowment and deficiency, that it is scarcely possible for us to doubt, that the seats of several of the larger organs are correctly indicated, and their functions ascertained. The establishment of two or three of the organs, we may remark, fixes the general principle, that particular parts of the brain are connected with particular mental powers, and that these parts and powers may be ascertained by observation. The question, therefore, concerning the number of them, and the seats of the organs, becomes one merely of detail, on which patient attention may be expected to lead to certain conclusions.

Viewing phrenology, then, as of some importance, we have endeavoured to trace the causes which led to its unfortunate reception at first, and to discover, if possible, how far the ridicule with which it was assailed arose from the ignorance of the scoffers, or from the inherent absurdities of the doctrines.

The reviewer of a treatise on any well known subject must feel impressed with the conviction, that his readers are acquainted with the topics of which he treats, and that they are to a certain extent judges of the discrimination displayed in his remarks. In such cases, a certain portion of intelligence and candour is rendered indispensable to his own credit. But when he comments on doctrines so novel that even the elementary ideas of them are not diffused in previous publications, the check imposed by the consciousness of writing for an enlightened public is withdrawn, and he is left with no other guides than his native principles and intellectual acumen. It is unnecessary to mention in which of these predicaments the doctrines of phrenology stood, when the periodical press of Britain, with a few honourable exceptions, filled column after column with every epithet of contempt, which wit, instigated by malice, or by offended self-love, could invent; and it is equally so to remark, how small a portion of candour and intelligence was displayed in the representations of them then given. One effect of a wider diffusion of the doctrines is already conspicuous; for, in the later attacks, the tone of criticism on the subject has been greatly mollified, and respectful argument generally substituted in place of scurri-

lity. Another improvement is desirable, and we trust it will soon follow. The opponents still combat phrenology without previously studying it with even moderate attention. We could point out several late articles of a hostile tendency, ably written, and in a philosophic spirit, which nevertheless betray an inexcusable ignorance of the subject, and which, we are morally certain, the ingenious authors would not have ventured to send abroad, if their readers had been fully acquainted with the doctrines. Indeed, this ignorance is in some instances so great, that the opponent condemns a phantom of his own brain, and gravely maintains, in opposition to it, truths which are constituent elements of the science.

When a new proposition in philosophy is submitted to our consideration, we compare it with principles which we regard as established; and if we are able to connect it consistently with them, we admit it to be true, and give it our assent. If it appear at variance with our previous opinions, we are disposed to reject it as erroneous, and rarely possess the magnanimity to enter upon a scrutiny of our first impressions, so as to discover whether they or the new ideas coincide most closely with nature, the only authoritative standard of physical truth. On the contrary, we too frequently regard received opinions with an undoubting and superstitious veneration, and reject new propositions as intrinsically absurd, not because we have ascertained them to be in opposition to facts, but because they do not coincide with what we previously believed to be true. Dr. Thomas Brown has justly remarked, "that to those who have not sufficient elementary knowledge of science, to feel any interest in physical truths, as one connected system, and no habitual desire of exploring the various relations of new phenomena, *many of the facts in nature*, which have an appearance of incongruity, as at first stated, do truly *seem ludicrous*." Lectures, vol. iii. p. 207. Nothing could be more at variance with the previous systems of the philosophy of man, than the discoveries of Dr. Gall. The common metaphysical theories, elaborated out of the minds of individual philosophers of retired habits and placid dispositions, contained only what might be called the angelic faculties of man. Thus, Benevolence, Reverence for the Divine Being, Love of Offspring, Friendship, and Reflection, were readily admitted among his faculties; but when Gall spoke of Combativeness, Destructiveness, Covetiveness, and Secretiveness, as primitive feelings of the human mind, the philosopher was moved with contempt, and the belles-lettres scholar with disgust, at the unseemly catalogue. This was one great cause of the ridicule cast upon phrenology. And yet, when the first impression of aversion occasioned by this rude display of human qualities has worn off, those individuals who have studied human nature with

the most discriminating eye, acknowledge that the faculties specified by Dr. Gall afford the means of explaining many varieties of character, which, by the old systems, were altogether mysterious and unintelligible.

Not only did the list of phrenological faculties, when compared with previous notions, appear absurd, but the idea, that the energy of the powers was in connexion with the size and activity of the organs, appeared a conceit "truly ludicrous," to use the words of an Edinburgh Reviewer. The mind has no consciousness of the existence of the organs, and hence, before Dr. Gall compared mental manifestations with cerebral development, as a means of discovering the connexion between them, no rational mode was known of ascertaining a single philosophical fact regarding the influence of the organization on the manifestation of the mental powers. On this point, therefore, the previous knowledge of philosophers was particularly defective, and their opinions erroneous; and the nearer the new doctrine approached to nature, the farther, of necessity, it receded from them; but, until nature was appealed to, it appeared, on account of this very difference, to be the more completely ridiculous and absurd.

The opponent of phrenology in the Edinburgh Review, without considering the impropriety of trying the doctrines merely by the standard of previous knowledge, observes, when speaking of Drs. Gall and Spurzheim, "that we do not know any writers who, *with a conceit so truly ludicrous*, and *so impudent a contempt for the opinions and labours of others*, are so utterly destitute of every qualification necessary for the conduct of a philosophical investigation." vol. xxv. p. 228. There is more matter for reflection in these observations than a cursory reading would suggest. The "conceit" appeared "ludicrous," because it was new; and the difference of result was construed into an "impudent contempt for the opinions and labours of others." Here, then, both the sin of the founders of phrenology, and the provocation which it caused to the ancient masters, are unfolded. But the science, in sustaining the ridicule of the present generation, has only shared the fate of every discovery which has benefited the human race. The individuals who are enthroned upon established opinions, never appeal to nature to ascertain the merits of new discoveries, until in their labour to put them down, they have exhausted every effort of authority, ridicule, and persecution; and the sentence of the seven cardinals who pronounced Galileo's discovery of the motion of the earth to be "an absurd proposition, false in philosophy, heretical in religion, and contrary to the testimony of Scripture," ought never to be forgotten, when judging of the merits of new doctrines, by their first reception in the world. The minds of

reflecting men are now more unbiassed on the subject of phrenology, and it may not be altogether unprofitable to enter into a short examination of the criticisms of the Edinburgh Reviewer, which at first were regarded by many as giving a death-blow to the philosophy of Dr. Gall.

First, then, it is said, that "intellect of every degree, and of every kind, and inclination of every variety, is found combined with brains of all sizes." p. 245. "We again deny, that there is any constant correspondence, or any connexion whatever, between the dimensions of a man's head and his intellect and inclinations, either in kind or degree." The Reviewer adds, "We affirm it to be the fact, that idiots in general have *uncommonly* large heads."

Now, we have examined the heads of a considerable number of idiots from birth, measured their dimensions, and compared them with those of sane individuals, and we have found that such unfortunate persons have in general brains considerably below the average size; and that this is no new observation, witness the remark of Dr. David Abercromby, in his curious "Discourse of Wit," published at London in 1686. "I remember," says he, "to have seen at Amsterdam, in the house near the temple, wherein the natural fools are kept, to the number of three or four, whose heads did not surpass in bulk an ordinary man's fist." Among the casts of heads and skulls now sold in the shops,* are those of two idiots, and a bust of Burke. Let any one contrast them by juxta-position, and believe, if he can, "that intellect of every degree, and of every kind, and inclination of every variety, is found combined with brains of all sizes." Idiocy, indeed, is *sometimes* produced by hydrocephalus, and then the head is preternaturally enlarged; but such cases are foreign to the point at issue. The question is, whether deficiency of size in the brain is a cause of idiocy, independently of disease, and we beg leave to testify, that our observations decidedly show that it is. Extreme cases display the truth with the greatest effect. They are the "instantiæ ostentivæ" of Bacon, and carry conviction where a thousand arguments would fail; for the mind, on seeing an object, goes through a process of reasoning concerning it, and arrives at a conclusion which it is often impossible to write adequately in words, or to excite with full effect in another intellect. We beg, therefore, of such of our readers as have the means of comparing the heads of idiots, and those of men of splendid intellect, to contrast them; and we leave it to themselves to judge, with what propriety the Reviewer asserts, that "Gall and Spurzheim, in affirming that the vigour of intellect is always proportional to the size of the

* As by O'Neill, junior, Canongate, and Carfrae, Drummond Street.

head, seem to have been desirous of trying how far their effrontery might be carried." p. 247. The Phrenological Society teaches a different doctrine, for their report, alluding to a collection of casts presented by Sir George Mackenzie, observes, that "it is impossible to look at the skulls in this collection, embracing those of human beings, from the lowest to the highest state of talent and civilization, and to doubt of the correspondence betwixt mental endowment and cerebral development." p. 13.

Secondly, The same opponent proceeds thus, "We venture to affirm, therefore, that such prominences on the head, as Gall and Spurzheim have described, indicating 'certain eminences of the brain within, and uniformly accompanying some peculiarity of intellect or inclinations in the individual, never have been observed; and that all they have been so good as to write on this subject is a mere fiction." p. 253.

To this, we reply, that we have devoted a considerable portion of attention to the observation of correspondence or of non-correspondence between particular mental powers and particular forms of cerebral development, that we have examined the heads of at least some hundreds of individuals, and especially those with whose characters and talents we are most intimately acquainted, and we affirm, in the most positive terms, that such correspondence actually does exist. Nay, more, we have to mention, that we are surrounded in Edinburgh by a multitude of persons who believe in the same truth as firmly as we do. The Reviewer, then, appears to us to have ventured on the foregoing remarks without experience, and without due consideration. For our own part, if we have fallen into error, it is not the result of precipitation; for most deliberately have we examined and studied nature, and fully aware were we of the certain consequences of any erroneous representations we might send abroad, before we ventured to make the present declaration. As the collection of casts is in the hands of many of our readers, we beg to refer them to those of Raphael's skull and of one of the Charibs, to the cast of Bellingham's skull and that of Dr. Helte; and, if they do not perceive differences in development, clear, tangible, and striking, and corresponding to the differences in talent and dispositions in these individuals, we give up all pretensions to discrimination. Moreover, we have seen differences as great and as obvious in living heads, and found the characteristic mental features to correspond essentially with those indicated by the development.

We do not mean to affirm that all the organs mentioned by Drs. Gall and Spurzheim are supported by the same strength of evidence, for some of them are small and difficult of observation; nor do we mean to conceal, that the functions of several

parts at the base of the brain are still undiscovered, and that the effects of activity and of differences of natural constitution remain to be farther elucidated. But, in determining the functions of the larger organs, comparatively few obstacles occur, and, if extreme instances of development or deficiency of them be resorted to, we cannot well conceive how conviction of the general truth of the system can be resisted. Cases of an intermediate character do not afford the strongest evidence; and we presume that many beginners, in consequence of not attending to this circumstance, have been puzzled with difficulties which they would not have met with in more decided instances. Drs. Gall and Spurzheim were at great pains to find extremes; we are assured by them, that every organ marked as established, rests on the evidence of instances, in which the differences were so great that mistake was almost impossible; and, in point of fact, we ourselves have seen an equally preponderating strength of evidence for the greater number of the organs of the propensities and sentiments, and those of the reflecting faculties. The report of the Society also speaks to this point.

"Individuals," it is observed, "may scoff at the doctrines of Phrenology, and think them too ridiculous to merit an inquiry: but the Society are convinced, that nevertheless every human being will continue, although unconsciously to himself, to manifest his faculties, by means of different parts of the brain, and with a power corresponding to their size and activity; and that mankind at large will believe the fact, as they did the revolution of the globe, whenever they turn their attention to the evidence. The Society, therefore, hold the principles of Phrenology as no longer subject to doubt; and while they recommend an attention to the subject to every reflecting and virtuous individual, who considers a knowledge of himself and of human nature as an object of importance, they conceive themselves called upon to direct their own efforts rather to enlarge and apply the truths which Phrenology reveals, than to strengthen the evidence on which the general principles rest."

Thirdly, "It is a wilful misrepresentation in them, Gall and Spurzheim, to affirm," continues the writer, "that in portions of the brain which are composed purely of white nervous matter, either *diverging* or *converging fibres* can be shown by the method they have described." In answer to this assertion, we beg to say, that we had the pleasure to see Dr. Spurzheim dissect the brain on several occasions, and had the evidence of our senses that the fibrous structure exists, which is here so confidently denied. He demonstrated the same fact to a great number of medical gentlemen of this city; and, in reality, the superiority of his dissections is no longer contested. A contemporary reviewer, who also is pleased to attack phrenology without considering it necessary to understand it, is constrained to bear wit-

ness to this truth, and to admit that Drs. Gall and Spurzheim have "subjected the brain to the most diligent anatomical investigation," and "have thrown some light on this very obscure branch of the physiology of the human frame."* The French anatomists also, who have had the advantage of the presence and personal demonstrations of Drs. Gall and Spurzheim, and enjoy great facility of procuring brains, admit the correctness of their anatomy in its fullest extent, and declare theirs to be the only rational mode of dissecting the brain, for ascertaining its structure. We can particularize the celebrated comparative anatomist Blainville, Professor at the College de Plessis; Beclard, Professor at the Ecole de Médecine; and Cloquet, well known by his "Anatomie Descriptive."

But, fourthly, we are also informed, that "the cases in which portions of various sizes have been removed from almost all regions of the brain, without the slightest affection either of intellect or inclinations, are numerous and most unequivocal," p. 243. Reference is made to a preceding Number of the Edinburgh Review, Feb. 1815, in which we perceive that Haller, Dr. Ferriar's papers in the Manchester transactions, and Sir Everard Home are cited, as evidences of this fact. Our readers are aware of the explanations which phrenologists offer of such cases. 1st, That the observers were in so great ignorance respecting the faculties attached to the different parts of the brain, that the patients might actually have been deficient in the mental powers, and their physicians not have discovered that they were so. And 2dly, That as the brain consists of two independent hemispheres, the functions may continue to be performed by one of them, after the other has been injured. But, what we wish at present chiefly to notice is, that the doctrines of phrenology have for the last six years been the subject of unceasing discussion in Britain, and that to the best of our knowledge no adverse instances in all this time have been brought forward by the opponents as of recent occurrence, to which they could appeal, in confirmation of the assertion, that the faculties may remain entire after the brain has been greatly injured. This fact speaks volumes on the subject. In the days of Haller, men believed in witches, and it was a small stretch of credulity for them to suppose that the mind could act in this life independently of bodily organs. It is a fact, although not generally attended to, that Dr. Ferriar's papers were written, not properly in a physiological discussion, but in a theological or metaphysical controversy with Dr. Priestley about Materialism; and his object was to prove that the brain is the *instrument* only, not the cause of the mental manifestations, the very doctrine which phrenology teaches. Indeed, so little is phrenology at variance with Dr. Ferriar's conclusion, that the doctrine of the plurality of organs

* London Monthly Review, enlarged for April, 1821.

which it establishes is the only means by which his facts and deductions can be rendered consistent. Nature, however, remains the same as it was in the times of Haller and Dr. Ferriar, and no case has been brought forward in our day to support the opinions so confidently maintained by the opponents. The conclusion from this fact is too obvious to require to be stated to the reader.

Lately, however, when the opponents have been pressed by the constant and forcible appeal to facts made by phrenologists, they have resorted to a new device in order to elude it. They have invented and circulated a report, that the physiologists of France and Germany, and also many persons in this country, after having at first believed in the doctrines, have on farther examination found them to be false, and have therefore renounced their faith in them. We have made diligent inquiry into the truth of this assertion, but have not discovered one instance of an individual recanting who had believed on observation; and we have seen a letter from Dr. Spurzheim to a gentleman in Edinburgh, dated Paris, 13th March, 1821, by which we learn the contrary.

"In the whole of our travels," says he, "we have been well received, and the second course was always more fully attended than the first, so that there was no doubt that the subject excited great interest. But it is to be regretted that we stopt too short a time to form practical pupils. The principles were explained, the development shown, and we were off. You will conceive that this was not the way to establish the doctrine. We had more advantage than our pupils, because we had great opportunities of observing the heads of many men of talents: We got more conviction than our auditors. We were prepared by previous study to make observations, but our stay was too short to teach the auditors to repeat them. Dr. Gall even gave the advice not to repeat the experiments, since it is difficult to do so, which I have mentioned in my large English work, 2d Edition, p. 270. 'But I assure you that not *one phrenologist from knowledge* has fallen back, saying that the doctrine is false. I have seen frequently the contrary, *i. e.* the belief in it strengthened by self-observations.'"

We are enabled to confirm this statement, by the testimony of an intelligent friend who paid a visit to Paris in June, 1821. He writes as follows:

"I have heard a belief in phrenology avowed by some of the most eminent professors, both of the colleges and of the Garden of Plants. Blainville mentioned in a lecture which I heard, that the principles were too well established to admit of doubt, and that he himself had made many observations and never found an exception. He said that he regarded the greater number of the organs as established, and that he believed farther observations alone were wanting to enable him to admit others. He started some objections regarding the lower animals, the unequal thickness of whose skulls, he said, rendered it difficult to de-

termine whether the external elevations perceptible in their heads were caused by brain or bone. In man, he said, no such objection exists, except in old age or cases of disease. Geoffrey St. Hilaire also, in his lectures at the Museum of Natural History, avows his belief in the doctrines, and points out in the lower animals many correspondences. Monsieur Royer too of the Garden of Plants, is well known as a most decided convert; and, indeed, he applied to me to procure for him the form of an application to be admitted a corresponding member of the Phrenological Society of Edinburgh, which I obtained and gave him. It is worth mentioning also, that about two years ago, Dr. Gall, at the request of the minister of the Interior, commenced lecturing for the benefit of the medical students in Paris. The lectures were, like others, delivered gratis; but he was provided with the use of the operation and lecture room in the Hospice de Perfectionnement, for his first course, and afterwards on account of that being too small, with the large examination room of the Institution des Jeunes Aveugles, which is well fitted for the purpose. His audience amounted to betwixt 200 and 300; and so eagerly is he attended, that it is well known that many more tickets were applied for at each course than could be given, and that the apartment was regularly crowded half an hour before the lecture began. Dr. Spurzheim also continues to lecture in Paris; and although from his demanding a fee, his auditory is not numerous compared with Dr. Gall's, yet he is regularly attended, and his course is esteemed the more philosophic of the two. I beg to add, that the physiognomical expression of some of the English students who were present at Blainville's lecture, and who probably knew nothing of phrenology but through the English reviews, was truly ludicrous. They appeared to relax their features for a laugh when the name of Dr. Gall first escaped the lips of the professor; but when they heard him spoken of with respect, and his doctrines declared to be true, the expression changed into wonder in some, and in others to absolute contempt. I thought of the self-esteem for which their nation is so remarkable, and could not refrain from smiling in my turn at this amusing manifestation of the organ."

So much for the allegation that the doctrines are falling into disrepute on the Continent. We observe in the next place, that the assertion that individuals, after once believing, have discovered evidence which induced them to renounce their faith, must imply one of two alternatives;—either that nature changed betwixt the period of belief and that of disbelief; or that the persons alluded to became converts at first from credulity, without due examination. The first alternative will scarcely be alleged to have happened; and as the second implies a total want of a philosophic understanding in the individual, and indeed admits his previous stultification, we willingly allow the opponents all the advantages which they can derive from such testimony against the truth of the doctrines. Even although some persons should affirm that they have made observations, and found the result to differ from the assertions of the phrenologists,—this would be nothing more than has happened in the case of other

sciences, which have nevertheless been ultimately admitted to be true. Mr. Playfair mentions that Mariotte, "though very conversant with experiment, *appears never to have succeeded in repeating the experiments of Newton.*" Supp. to Encyc. Brit. second Diss. p. 57. The same thing may occur in phrenology; but, as a general rule we hold that the observations of those, who, from natural talent and previous study, are best qualified to conduct the investigation with success, are entitled to be viewed with the greatest confidence, and a little inquiry will in general show on which side these advantages lie.

We have mentioned, that our opinions in favour of phrenology are founded on an inquiry into the facts by which it is supported; and as we derived a stronger conviction of its truth from this source, than by reading the ablest arguments in its defence, we shall state, for the satisfaction of the reader, a few out of many cases which have fallen under our notice, and for the accuracy of the details of which we pledge ourselves in the most decided manner. To render them intelligible, we have prefixed a tabular view of the phrenological faculties and their functions, together with figures of the head, pointing out the relative positions of the organs.

In October, 1820, a member of the Phrenological Society visited Mr. Owen's establishment at New Lanark. He was introduced to the schools, which contained nearly 200 children, and informed that he might make such observations on the development of their heads, and their talents and dispositions, as occurred to him. He began at one end of the apartments and proceeded to the other, selecting extreme cases both of deficiency and endowment of cerebral organization, and pointed out the mental defects or qualifications which he supposed them to indicate. Mr. William Ballantyne the teacher, who, from a close intimacy with the children, was acquainted not only with their talents but with their dispositions, bore ample testimony to the general correctness of the observations; so much so, that, in consequence of this demonstration of its truth, he commenced the study of the science without delay.* This examination took place in presence of Mr. Owen, and several ladies and gentlemen, whose names have been mentioned to us, and to whom we are ready to refer any reader who may be sceptical on the subject.

Another case is well known in this city. Captain D. along

* In a letter dated 24th July, 1821, which we have seen, Mr. Ballantyne writes, "I can now with ease trace the different organs as they are marked on the plate at the end of the Essays on Phrenology, and understand the faculties connected with them, and have acquired more knowledge of human nature by this study in 6 months, than I had been able to acquire in the 6 years preceding (during which I have been in Mr. Owen's school) without such assistance." We have heard a similar declaration made by an eminent teacher in Edinburgh, who is now studying the science.

with Mr. D. B. junior, lately called on the same gentleman, bringing with them a boy aged 10 years, and saying "this youth is a prodigy, tell us from his development in what respect. The gentleman requested them to take a note of his development, and said he would give his opinion upon seeing the general result of the whole combination of organs. He began at the organ No. 1, and mentioned the size of each up to No. 33. The note bears, that "Combativeness, Destructiveness, Covetiveness, Secretiveness, and Cautiousness," are very large; that the organs of the knowing and reflecting faculties are uncommonly well developed, as are also those of "Benevolence and Ideality;" but that "Conscientiousness" is particularly defective. He requested them to desire the boy to withdraw, and then mentioned that the intellectual development indicated great talents, but that the moral development was particularly deficient; and that he feared the youth would be grovelling in his dispositions, and prone to falsehood, duplicity, and finesse. Captain D. then mentioned, that the boy had been picked up some months before on the highway, almost naked and starving, by a lady who resides in the neighbourhood of Edinburgh; that she had clothed him, treated him with great kindness, and attempted to educate him; but that he had turned out so complete a thief, liar, and scoundrel, as to excite equal astonishment and abhorrence, and that he displayed talents for trick and dissimulation far beyond his years. A note of his development, with some remarks on the means which his high intellect promised to afford, of saving him from destruction, by a sedulous education, were given to Captain D.; and we have been informed, that an eminent individual in Glasgow is now, in consequence, directing a friendly eye to his moral and religious instruction.

Mr. B. D. of London, sent to a phrenologist in Edinburgh a cast of the head of a *gentleman*, without mentioning the name, or any circumstances of his life or profession, and requested that he would draw the character indicated by the development. The desired observations were transmitted in a letter dated 31st March, 1821; the development afforded by the cast appearing to be as follows:

1. Amativeness	*Rather small.*	15. Hope	*Large.*
2. Philoprogenitiveness	*Large.*	16. Ideality	*Not large.*
3. Inhabitiveness	*Moderate.*	17. Conscientiousness	*Very large.*
4. Adhesiveness	*Moderate.*	18. Firmness	*Large.*
5. Combativeness	*Small.*	19. Individuality	*Small.*
6. Destructiveness	*Pretty full.*	20. Form	*Moderate.*
7. Constructiveness	*Moderate.*	21. Locality	*Large.*
8. Acquisitiveness	*Rather full.*	22. Tune	*Rather full.*
9. Secretiveness	*Rather full.*	23. Comparison	*Full.*
10. Self-esteem	*Large.*	24. Causality	*Full.*
11. Love of approbation	*Very large.*	25. Wit	*Moderate.*
12. Cautiousness	*Very large.*	26. Imitation	*Full.*
13. Benevolence	*Large.*	Wonder	*Not large.*
14. Veneration	*Very large.*		

"The character is inferred to be the following: The individual would be decidedly moral and intellectual, and little prone to animal indulgence. He would be scrupulous and honourable in the extreme, with a great aversion to debt; ambitious of distinction, or desirous to please; but exceedingly modest, and most esteemed by those who knew him best. His justice, though great, would not be severe, but would be softened by benevolence, and elevated by veneration. The intellect would be penetrating, but would have a greater tendency to speculate on moral than on physical causes. He would shine more in the private circle than in public. His understanding would be slow, but sound in its conclusions; and he would be much troubled with doubts and difficulties in his decisions. The individual would not worship wealth, but he would have a prudent regard for property, and would calculate his expenses and his income, so as to keep the former considerably within the latter. He would be alive to music. He would be religious, and a sincere worshipper of God."

The following answer was received to his communication. "You hit off the character of the clergyman (for such he was) to a nicety. Your letter has been shown to the most intimate friends and acquaintances of the deceased, and in all material points is fully assented to by them."*

The next case we shall mention is one of a still more decisive nature. By the rules of the Phrenological Society, a note of the cerebral development of each candidate requires to be annexed to his application for admission, the Society having so much confidence in their own science, as to hold this specification as the best intimation which they could obtain of the dispositions and talents of the applicant. A gentleman well known in this city, requested one of the members to draw out a sketch of the character which the development of his brain indicated, promising to declare honestly whether it was correct. The member alluded to declined to comply with this request, observing that he knew the character so well from personal intimacy, that no one would be disposed to believe that he had proceeded in his observations entirely on phrenological principles; but he offered to transmit the note of the development, without a name, to a person who was an entire stranger to the individual, and to solicit his report. The memorandum transmitted was verbatim as follows, and the only intimation which accompanied it was, that the individual was educated, and moved in cultivated society.

* Since writing the above, we have been informed that the individual in question, when in health, was remarkable for prudence and circumspection; but that six years before his death he was struck with apoplexy, and rapidly lost this quality of mind. He became at length perfectly foolish, his mind retaining no distinct ideas, except on theological subjects, on which he always gave consistent answers. After death, his brain was dissected by a medical gentleman in London, of high respectability, who found that "the parts of the brain which had become pulpy were those in which Dr. Gall places the organ of prudence and circumspection,"—or *cautiousness* in the table.

1. Amativeness	*Full.*	18. Firmness	*Large.*
2. Philoprogenitiveness	*Moderate.*	19. Individuality	*Small.*
3. Inhabitiveness	*Large.*	20. Form	*Large.*
4. Adhesiveness	*Full.*	21. Size	*Full.*
5. Combativeness	*Full.*	22. Weight	*Unascertained*
6. Destructiveness	*Large.*	23. Colouring	*Large.*
7. Constructiveness	*Full.*	24. Locality	*Very Large*
8. Acquisitiveness	*Large.*	25. Order	*Large.*
9. Secretiveness	*Full.*	26. Time	*Full.*
10. Self-esteem	*Moderate.*	27. Number	*Moderate.*
11. Love of approbation	*Very large.*	28. Tune	*Full.*
12. Cautiousness	*Large.*	29. Language	*Large.*
13. Benevolence	*Very large.*	30. Comparison	*Large.*
14. Veneration	*Small.*	31. Causality	*Full.*
15. Hope	*Full.*	32. Wit	*Full.*
16. Ideality	*Very large.*	33. Imitation	*Full.*
17. Conscientiousness	*Large.*	Wonder	*Moderate.*

N. B. The head is round, broad from side to side, and moderately high from the ear to the circumference.

The gentleman returned the memorandum with the following remarks:

"The head of this individual is excellently calculated for passing through this world with satisfaction to himself and to those who know him. He has enough of the lower propensities to make him sufficiently attentive to his own interests, and spirit enough to defend them. There is too much principle, and too much good feeling, ever to allow him to forget the feelings or sufferings of others, or ever to see them without an anxious desire to relieve them. He would be kind and obliging to every one, much alive to the opinion of others, and rather ambitious. He would be enthusiastic but not rash in his undertakings, more inclined to respect merit than rank. In religion good works will go very far with him. He would be a very amusing and a very rational companion. His discourse will be much more the offspring of his own brain than the *on dits* or *anecdotes* of others. He should have a taste for drawing, especially landscapes and portraits, and for the fine arts in general, though I think he would make a better judge than artist. He would have a good ear for music both as to time and melody. He ought to be a good mimic. He would never be at a loss for words to clothe his ideas; and if not a poet himself, he would delight in poetry and other works of imagination. Though perhaps fond of indulging in wild vagaries for the sake of amusement, yet he would show strong good sense at bottom; or when serious, a free liberal way of thinking. This form of head is in general a very active one, and takes an interest in every thing. Generally fond of society."

We have shown these remarks to several friends of the individual described and they unite in declaring that a more correct and characteristic description could not have been given even after a twenty years acquaintance; nor is it improper to mention, that its general accuracy has been testified to us by a gentleman in a high official situation in this city, to whom the individual is well known. The author of the observations was not informed,

for several days after they were handed about, who the subject of them was; and we know that he has not seen him up to the moment when we write.

We shall add only one case more, and we present it for the sake of contrast. The vulgar dabbler in phrenology conceives that the whole science terminates in a discovery of elevations in the head, indicating certain propensities and talents in the mind, and he perceives no purpose to which it is applicable beyond that of satisfying an idle, and often an impertinent curiosity. Those, on the other hand, who study it as a science, endeavour to estimate the effects of the combinations of the organs in giving rise to the varieties of individual character; and to acquire the power of determining with precision for what situations particular persons are fitted by nature, or the reverse. It is only by studying the effects of the combinations that this knowledge can be attained; and to show how different the character becomes from variations in the relative proportions of the organs, we add the development of David Haggart, lately executed in this city, as it appears upon a very accurate cast taken after death. It forms a striking contrast to that of the clergyman formerly mentioned; and a single glance at the two casts produces a stronger perception of the great inferiority of Haggart's moral development, than any description that could be given.

1. Amativeness	*Moderate.*	18. Firmness	*Very large.*
2. Philoprogenitiveness	*Large.*	19. Individuality	*Moderate.*
3. Inhabitiveness	*Large.*	20. Form	*Full.*
4. Adhesiveness	*Moderate.*	21. Size	*Moderate.*
5. Combativeness	*Very large.*	22. Weight	*Unascertained.*
6. Destructiveness	*Full.*	23. Colouring	*Small.*
7. Constructiveness	*Large.*	24. Locality	*Large.*
8. Acquisitiveness	*Moderate.*	25. Order	*Full.*
9. Secretiveness	*Very large.*	26. Time	*Moderate.*
10. Self-esteem	*Very large.*	27. Number	*Moderate.*
11. Love of approbation	*Small.*	28. Tune	*Full.*
12. Cautiousness	*Full.*	29. Language	*Full.*
13. Benevolence	*Large.*	30. Comparison	*Moderate.*
14. Veneration	*Moderate.*	31. Causality	*Full.*
15. Hope	*Rather small.*	32. Wit	*Full.*
16. Ideality	*Very small.*	33. Imitation	*Full.*
17. Conscientiousness	*Small.*	Wonder	*Small.*

"This *head is very high from the ear* to *the circumference;* the *coronal surface is narrow, and the basilar surface broad: the length is moderate.*"

It is unnecessary to describe the character of this individual, as his atrocities are unfortunately too well known, by means of his life written by himself, and published after his execution. By comparing his development with that of the moral individuals already mentioned, it will be observed that Haggart was

not so unfortunate in an immoderate endowment of the lower propensities, as in a great deficiency of the organs of the higher sentiments. In him, combativeness, destructiveness, acquisitiveness, secretiveness, and self-esteem, although singly, not unprecedentedly large, formed a combination of fearful tendency, when acting together, and inadequately controlled by sentiment. The organ of benevolence is the only one of all the sentiments which is largely developed, while the organs of love of approbation, ideality, hope, and justice, are decidedly deficient, and that of veneration only moderate in degree. The intellectual faculties and firmness confer the means of gratifying desires; but the nature of these depends on the propensities and sentiments which predominate in the individual, and hence it is easy to conceive how Haggart's tendencies would, with few exceptions, be only towards evil. Nevertheless, the large organ of benevolence, and the high intellect which he possessed, appear to us to have afforded the means of effectuating his reformation, if, when he had committed his first offence, he had been subjected to a proper system of prison discipline, in place of being educated to tenfold iniquity by associating with the corrupted beings with whom he herded in the common prisons. The means of reformation were obviously such treatment as would weaken his lower propensities by long restraint, and strengthen his higher sentiments by sedulous and continued cultivation. His combination of faculties is one which severity would only render more savage and intractable; but which kindness, joined with intelligence and firmness, might readily have been expected to subdue.

Viewing phrenology as a mere catalogue of human faculties, its superiority over the metaphysical systems is obvious from the foregoing instances of its practical application; for, although the science of the mind has been cultivated since the time of Aristotle, and with particular assiduity since the days of Locke, no attempt, with which we are acquainted, has been made to apply it in the practical manner here exemplified. When it is recollected, then, that the phrenological faculties are not mere emanations from the fancies of the founders, but that they were discovered and published to the world successively, without arrangement or perceptible relation, and merely in the order in which the several organs were casually observed, their capability of application to the delineation of character affords a strong presumption of their truth. Bacon inferred that Aristotle's philosophy was false, because it was barren; and it is a legitimate inference from the same principle, that phrenology is true because it is fruitful. Farther, as we stand pledged to the most perfect good faith in the statement of the foregoing cases, we think ourselves entitled to observe, that either phrenology must

have a foundation in nature, or its professors must be endowed with a spirit of divination; for we defy any one to account for the remarkable correspondence of the delineations now given, with the characters in nature, upon any other supposition. In the case of the gentleman in Edinburgh, there was not even a cast to lead the phrenologist to a single line of his description; so that inference from physiognomy was entirely excluded.

We have dwelt thus long upon the general question of the truth of the science, on account of the great importance which it appears to us to possess. We formerly endeavoured to point out some of the advantages which phrenology was calculated to confer upon the philosophy of the mind, considered as a science, and the work by Dr. Spurzheim, on Education, now before us, enables us to speak of its practical utility.

In the popular treatises on education, man is considered too exclusively as an intellectual being. It is acknowledged theoretically, that the body has an influence on the mind, and the mind on the body; but hitherto, this principle has produced few practical effects. Girls, for example, are taught every accomplishment which may enable them to become agreeable companions or elegant toys to men; but they are not sufficiently instructed in the duties of the important situation which they are destined to fill in society. A young woman is not unfrequently called upon to enter into matrimony at the age of 19 or 20 years, and in a short time becomes a mother. The health and mental accomplishments of a number of human beings then depend, in a considerable degree, upon her care; and yet she too frequently enters upon the charge, without a single idea of the causes which favour bodily health, or produce disease; and without a glimpse of the natural constitution of the minds which it is her duty to train to intelligence and virtue.

Dr. Spurzheim, with the view of calling the attention of parents in ordinary life, to the benefits which result from a proper regard to the physical education of their children, enters into a consideration of "the laws of propagation;" "the laws of the vital functions," and "the laws of exercise." He observes that,

"Those who have more confidence in facts than in speculative reasoning, cannot doubt that the qualities of the body are hereditary. There are family-faces, family-likenesses, and also single parts, such as bones, muscles, hair, and skin, which resemble in parents, and in children. The disposition to various disorders, as to gout, scrofula, dropsy, hydrocephalus, consumption, deafness, epilepsy, apoplexy, idiotism, insanity, &c. is frequently the inheritance of birth.

"Propagation is highly important, not only with respect to organic life, but also to the manifestations of the mind, since these depend on the nervous system. There are many examples on record, of certain feelings, or intellectual powers, being inherent in whole families.

Now, if it be ascertained that the hereditary condition of the brain is the cause, there is a great additional motive to be careful in the choice of a partner in marriage. No person of sense can be indifferent about having selfish or benevolent, stupid or intelligent children."

The Dr. makes some excellent observations on "temperature, food, air, light, cleanliness, sleep, watching, rest, and bodily exercise," as affecting children from birth to seven years of age. His remarks are not new in themselves, but they will be so to the generality of readers for whom the work is intended; accurate information upon these topics having been confined too exclusively to medical practitioners.

In the chapter on the Laws of Exercise, the author observes, that

"The intellectual faculties of man have improved less by education than they might have done, in consequence of the primitive powers of the understanding not being known, and of the difference between sensations and perceptions on the one hand, and the artificial signs, either sounds or figures, which express them on the other, not being attended to.

"It is a great fault to proceed as if the signs could produce sensations and perceptions, while they can only call those ideas into recollection, which have pre-existed in the mind. The general principle, in communicating every kind of positive knowledge of the world, is to excite, first, sensations and perceptions, and then to denote them by particular signs. Thus we shall avoid the great mistake to which we are accustomed from infancy, viz. of teaching words without a meaning.

"Each intellectual faculty then, must be exercised by practical application, in the same way as the sense of hearing is exercised by hearing, that of smelling by smelling, that of sight by seeing. Moreover, the vocal or written signs are to be used only as means of communication, of recollection and tradition; but they cannot be considered as the cause of any idea or sensation.

"The order of instruction in school education ought to follow the order of nature, in bringing the faculties into activity. Children acquire notions before they make themselves acquainted with signs to indicate them. They know the objects themselves sooner than their qualities and mutual relations; they know the qualities of those objects sooner than the modes of their actions. Accordingly, their language begins with nouns, and verbs in the infinitive mode. By degrees, they learn signs to indicate their acquired notions of various kinds. Their language then, evidently shows, that their faculties do not appear simultaneously. It is, indeed, an important point in education, to know that the faculties of the mind begin to act successively, viz. in proportion as the organs on which their manifestations depend, are developed. Hence, they ought to be exercised in the same order; and the knowledge of the periods of development of the respective organs, is as necessary as a knowledge of the functions of the primitive faculties; because it is certain that no faculty can be exer-

cised without the assistance of its organ. This latter principle is detailed in the physiognomical system. It is general in organic and animal life."

A common error in conducting education is to bestow too much attention on intellectual cultivation, and to neglect that of the feelings. Dr. Spurzheim observes,

"Let it not be forgotten, that from the earliest age, the feelings, as well as the intellectual faculties, may be educated, and that young children show no less difference in their characters than in their talents. They are patient or obstinate, indolent or lively, timid or courageous, attached to, or careless about others, &c. Let those powers which are naturally too active be quieted, and their activity prevented, while those that do not act with energy enough, ought to be excited in a practical manner.

"The knowledge of the means of exciting the powers is very important, and not sufficiently understood. Obstinacy will be increased by unseasonable vexations, while just and quiet resistance, or fear, may suppress it. Timid children must be early accustomed to the society of strangers, bold ones may be brought up alone. The immense error, that words and precepts are sufficient to call the internal feelings, and intellectual faculties, into active exercise, must be abandoned. The sight of a person wounded or in danger, makes a greater impression on the mind than reading that thousands have been killed in a battle. The higher feelings of a large audience are more moved by a dramatic representation than by a monotonous sermon. Natural language, being the result of active feelings, has more effect than artificial signs. We are more likely to laugh or smile, on looking at a gay face, than on hearing the word gaiety mentioned."

One great advantage of phrenology is, that it enables us to discover the relative strength of the different faculties in each individual, and, in consequence, to repress those which may be too powerful, and to strengthen, by exercise, those which are too weak. Philosophers have long taught, that these ends should be accomplished by education; but persons in ordinary life have felt extreme difficulty in distinguishing motives in children—in determining to what faculties their habitual tendencies ought to be ascribed—and in discriminating between intellectual errors and perversities of feeling. We speak from observation, in saying that phrenology has already proved of essential utility to several persons who have studied it, by dissipating those obscurities which have so long hung over the elementary principles of the mind, and has enabled parents of ordinary attainments to treat their children with a degree of intelligence, and an insight into their real mental constitutions, which even the philosophers under the old systems failed to attain. We have seen children themselves profit by the knowledge which it enabled them to obtain of their own dispositions. They learn, with a little instruction, to distinguish differences of development, and they

understand what is meant by the feelings of love of approbation, self-esteem, combativeness, destructiveness, or benevolence, with great facility. We have known one shamed out of a quarrel, by showing him that he was manifesting absurdly his combativeness and destructiveness; and another reclaimed from a *pet*, by pointing out the ridiculous figure which his offended self-esteem was causing him to make in the eyes of his associates.

The chapter "On the Direction of the Faculties" is of great importance. The author says—

"The point which I wish now to impress on the minds of my readers is, that human nature is so constituted by the CREATOR, that morality is as necessary to the prosperity of mankind, as oxygen to combustion, caloric to vegetation, and respiration to human life.

"I am sorry to observe, that the cultivation of the understanding constitutes the principal object of education: and that the pupils of public establishments smile with pity at praise given for good behaviour. I am well aware, that children of excellent conduct often do not excel in intellect; but we find also, that many young and old individuals of great understanding do not always behave as they ought to do. These persons convert their intellects into scourges of society, and are the greatest enemies to the happiness of the race."

The Dr. observes, that in all actions morality is to be kept in view as the end and aim.

"I repeat," says he, "that the faculties proper to man should govern every where, and that the powers common to man and animals should be encouraged only in so far as they contribute to the great end of the happiness of human nature.

"The animal powers, when subordinate, may do good; but they produce much evil, as soon as their gratification becomes the aim of life. It is remarkable that all institutions, true Christianity excepted, are founded on selfish principles, and by far the greater number of the motives which they propose to mankind, originate in the animal feelings.

"In education, the regulation of the mode in which gratifications are sought, is of great importance. Each faculty, when active, wishes to be satisfied, and will excite those powers which may become the means of its gratification. Suppose, for example, that we have a desire to be distinguished, we may fight, destroy, calculate, cultivate arts, &c. according as distinction is likely to follow the performance of such and such actions. To gain eternal happiness, we may do and we may omit, various things, according as we are taught that it is to result from the one or the other. The gratification of individual faculties may even become a means of obviating their abuses. Covetiveness, for instance, may be prevented from stealing and cheating, &c. by placing before the mind the consequences of illegal actions, and by showing, that the best calculated selfishness is that which is combined with honesty."

Dr. Spurzheim, in speaking of the mutual influence of the faculties, observes—

"It is essential to know which faculties assist each other, and which act in opposition, in order to direct the actions and omissions of man. Attachment may be applied to men, animals, and things. It will generally rest on objects whereby the other feelings may be satisfied at the same time, or at least not prevented from being so. Attachment is assisted by mildness and cautiousness in the character. Children, with these feelings, in order that they may not be deceived in their dealings with man, should be made acquainted with the difference of men, and with the various motives of their actions.

"Courage is not given to indulge quarrelsomeness and anger, nor to effect gratification of vengeance. Its aim is to defend what is absolutely just. If not active enough, it ought to be encouraged, not only by words, but by exposing the individual to situations which may appear annoying or even dangerous. Timid children will become less fearful by being accustomed to society. If courage be too strong, its bad consequences may be shown; and, according to circumstances, attachment, selfishness, the love of approbation, or the moral feelings, may be opposed as motives to restrain it.

"Selfishness and the love of approbation, act with the most different appearances, according to their combinations with other faculties, and to external circumstances. It is known, and I have already mentioned, that their activity has been considered, by some philosophers, as sufficient to explain all the actions of man, and to them, as its source, even talents have been attributed. Indeed, whenever we omit any thing, in order to gain any earthly or heavenly enjoyment, selfishness is active, and whenever we wish to be approved of, the love of approbation comes into play. The tendencies of these two powers are easily distinguished in children; but I repeat, that their preponderance produces great mischief in society; that they are too much cultivated in common education, and that it is an error, the evil consequences of which are incalculable, to represent them, as the chief aim of our existence, while they ought to be only secondary motives. I have seen children endowed with a great deal of pride and love of approbation, who became quite intoxicated by being praised, and, certainly from this excitement, committed new faults, and sometimes became intolerable for several days."

In the chapter upon the differences of natural endowment, Dr. Spurzheim makes some excellent observations upon the propriety and advantage of directing the destination of children in life, with a view to the natural endowments of their minds.

"To bring up a child endowed with great animal propensities, such as amativeness, combativeness, covetiveness, self-esteem, &c. to the church, whatever his intellect may be, is the height of error and absurdity. Nothing has done greater harm to society, than placing individuals in professions and situations for which they are unfit, not only through the want of some necessary faculties, but also through the inordinate activity of some of the opposite ones. Strong amative-

ness or cruelty produces mischief in a Roman Catholic priest, as does the love of domination in the representative of a free nation, corruptibility in a judge, fear in a general, &c.

"The feelings, then, ought to be exercised with a view to the future destination of children. Combativeness is to the soldier what Veneration is to the clergyman; but, in both, benevolence and justice should be exercised. Moreover, the effect of the natural endowment of the feelings, in influencing conduct, is not sufficiently considered in the choice of persons to rule or to lead society. This highly important point can be perceived, in all its magnitude, by those only who are convinced, that the faculties which produce feelings, are natural gifts differing in every individual; that they are independent of intellect, and are the principal cause of our actions. In this way, fishermen, who are highly gifted in natural sentiments, may be better moralists than high priests, mathematicians, orators, or philosophers, who excel only in intellect, and whose sentiments are weak compared with their inferior propensities."

The work contains several remarks upon the mode of conducting intellectual and professional education. Chapter fifth is on the "Education of the Sexes." The author points out certain feelings which he conceives to be stronger in women, in general, than in men.

"The intellectual faculties," says he, "though, like the feelings, essentially the same in both sexes, are widely different in power in the two, and men undoubtedly enjoy the superiority. I by no means say, that women are made to be the toys of men, much less their slaves; and I wish that their understanding may be more cultivated than it usually is. But whoever will attend to female education, will find that they acquire many notions of individual things; that they excel in the recitation of anecdotes and descriptions of manners, and in the epistolary style; that they are admirable in details, but dwell on effects, without tracing them back to their causes. In arts and sciences, females rarely show themselves masters, they most commonly remain apprentices. Those female authors who defend their sex, maintain that their education is neglected, and that on this account alone they are inferior, for they are all obliged to admit the actual inferiority of the fair sex. Yet there can be no doubt that more girls than boys learn music, drawing, and painting, and that many females cultivate these arts exclusively. Why then, we may ask, do their compositions so rarely equal those of men? Whenever great combinations, deep reflection, discrimination, and general abstraction are required, when principles and laws are to be established, females in general remain behind.

"Thus, there is a natural difference between the two sexes, not in the number, but in the degrees of the primitive powers of the mind. Some are stronger in women, others stronger in men, and both sexes seem to be destined to different occupations in society. Indeed no education will change the nature of the innate dispositions. Let, then, each sex, and each individual, be cultivated and employed in

those things for which he is fit. The claim to justice is equal in man and woman, their duties only are different."

The second part of the work is dedicated to a consideration of the means of correcting and reforming malefactors. From ignorance of the primitive constitution of the human mind, criminal legislation has been attended with imperfect success. Legislators have overlooked the fact, that individuals may be impelled to crime by the inordinate activity of their natural propensities, and may be so far deficient in sentiment and in intellectual capacity, as not to be alive to the fears of disgrace and punishment, which influence men more favourably constituted. Dr. Spurzheim views offenders in the light of patients rather than as criminals. He regards them as froward, overgrown, and ill-educated children, who require to be corrected by the application of proper means; and he holds it to be the duty of society to apply these means, rather than to allow the individuals to remain exposed to the exciting influence of an unfortunate natural constitution, and unfavourable circumstances, until they become the victims of temptation, and then to punish them with a relentless and barbarous severity. We cannot now enter into the details of this part of the work. The views of the author coincide with the opinions of those who have done more by the application of benevolence and intelligence to the reformation of offenders, than has yet been accomplished by means of penal enactments and severe inflictions of misery.

The style of this work, although evidently the production of a foreigner, is simple and perspicuous. The work is replete throughout with good feeling and truly Christian principle. Indeed, it is a distinguishing feature of this philosophy, that it presents views of human nature harmonizing in the most perfect degree with those of the New Testament. Its code of morality, therefore, is the same, and preserves in its full force the responsibility of man. Throughout the work, Dr. Spurzheim inculcates, with the greatest earnestness, not only the imperious obligation, in a religious point of view, of subjecting the animal feelings to the control of the sentiments of veneration, justice, and benevolence, but points out the secular advantages, in an increase of public and private happiness, which would flow from such a triumph of the higher over the lower principles of our nature. Wherever the great interests of mankind are touched upon, the author delivers his sentiments with a warmth of feeling, and an eloquence of expression, which cannot fail to procure him the respect of every virtuous mind. The preliminary part of the work contains several observations, which, although familiar to medical practitioners, are little known, and less regarded by parents, and other persons in ordinary life, to whom

children are generally entrusted; but which, nevertheless, if attended to, would have a great influence on the happiness and prosperity of the rising generation. These remarks, therefore, fall to be estimated, according to their utility to those to whom they are addressed, rather than by their novelty as additions to science. The subsequent chapters of the work will be found to be interesting by readers of every class; for the doctrines of phrenology, on which they are founded, approach so closely to the language and the observations of common life, that a reader of the most ordinary attainments will find himself able to take a part in the discussion. The work is characterized by one peculiarity of foreign extraction, which is deserving of notice. The propositions of the author are fortified by a multitude of instances and analogies, which, to the English reader, appear occasionally superfluous, and even tedious. This mode of composition is adapted more to the mental habits and literary taste of the French than of the English public; but it is an error not only venial in itself, but almost to be expected from an author who has fixed his residence, we believe for life, among our southern neighbours. Still, even in the midst of these details, Dr. Spurzheim never loses sight of the conclusion to which they tend; and, in the general scope of the work, we unequivocally feel the presence of a powerful and generalizing mind.

Rapport du Comité Central de Vaccine, sur les Vaccinations Pratiquées en France pendant les années 1818 *et* 1819;—*or a Report from the Central Committee of the Society for propagating Vaccination, on the Number of Children vaccinated in France during the years* 1818 *and* 1819. Paris, 1821. pp. 132. (For private circulation.)

(London Medical and Physical Journal, for November, 1821.)

"They certainly manage these matters better in France."—The means adopted by our transmarine neighbours for the propagation of vaccination in their own country, are admirably calculated to attain that desirable object. Foremost amongst those measures we must place those annual festivals and public meetings of the Vaccine Society, at which every class of persons is admitted; and where, after a plain and gratifying statement of the success of vaccination during the preceding year, medals and pecuniary rewards are distributed, with suitable eulogiums, to those individuals, whether of the medical profession or otherwise, who have most distinguished themselves for the zeal with which they promoted vaccination. One of these solemn festivities, so honourable to the author of the great dis-

covery which it is intended to commemorate, lately took place in Paris, agreeably to custom; and it is now our pleasing duty to record the occurrence, at the same time that we shall endeavour to give our readers an account of its result.

On Saturday, the 5th of May, 1821, Baron CAPELLE, counsellor of state, charged with the administration of public hospitals and other medical charities, held, and presided at, a general meeting of the Central Vaccine Society, in the great library of the Faculty of Medicine. Several professors of that faculty, many physicians and surgeons, clergymen of the catholic and reformed religions, and a vast concourse of pupils and people, attended the meeting. Baron Capelle opened the business of the day, by calling the attention of the meeting to the increasing benefits accruing to society from the discovery of vaccination; a discovery, than which no other called more loudly for the gratitude of mankind. The Baron's description of the obligation we owe to JENNER is both neat and appropriate:

"De tous les bienfaits consacrés par la reconnaissance publique, il en est peu qui méritent autant cet hommage que celui dont vous êtes les savans propagateurs: en lui tout est vrai, tout est avantageux; la victoire n'est acheté par aucun sacrifice, la découverte par aucun erreur; rien n'y ressemble à ces conceptions hasardées dans lesquelles la sagesse de l'expérience est souvent sacrifiée à la vanité des innovations. La vaccine a déjà répondu par vingt-cinq ans de succès aux préjugés qui la combattaient; et l'espèce humaine, secourue par elle contre un des plus terribles fléaux qui la menacent, trouve dans sa propre conservation un témoignage qui rend désormais toutes les critiques impuissantes et tous les éloges superflus."

The Baron concluded by observing, that much yet remained to be done, and that it was important "de ne point s'arrêter tant qu'il reste des progrès à obtenir."

Professor CHAUSSIER, president of the central committee of the Vaccine Society, whose efforts in encouraging vaccination have been as successful as they have been constant, next addressed the meeting; and observed, that, from the multiplied experiments and numerous observations made during more than twenty years, it had been ascertained, in the most positive manner, that vaccination was most efficacious in preventing the small-pox, and might possibly become the means of completely eradicating that disease; that, in France, no effort was wanting to promote so desirable an end; and that the central committee, with a view to that object, kept up a constant correspondence in every, even the most remote, part of the kingdom, and distributed vaccine matter with a praiseworthy profusion. It was but lately that a large quantity of that matter was forwarded to China, as a present from the French king to the sovereign of that vast empire, in which the small-pox had, last year, com-

mitted great ravages. The government has determined that pecuniary rewards shall be annually distributed to the most zealous vaccinators; and, to second the philanthropic views of the administration, the prefects of the departments have established special committees in every town, charged to propagate vaccination, through the assistance of expert physicians, surgeons, and pastors. Mr. Chaussier acknowledged at the same time, that, notwithstanding the example of sovereigns, who submitted their own infant children to the operation, and the expressed conviction of men conspicuous for their talents and philanthropy, vaccination had not yet reached that degree of universality which the welfare of mankind still imperiously demands.

The Professor then went on to investigate the different causes which have retarded the progress of vaccination; and successfully combatted all the objections raised against it. In doing this, the Professor avails himself of every fact and argument urged by the National Vaccine Establishment, the College of Surgeons, and Sir Gilbert Blane, in England, for the same laudable purpose, in their respective documents; copies of which had been transmitted to the Professor.

We are, however, of opinion, like many others, that coercive means, more or less severe, according to the spirit of the laws, ought to be employed by every government, in order to ensure the universal adoption of a measure, the prejudices against which it would be a waste of time to endeavour to combat by means of plain reasoning only and fair counsel.

"Le raisonnement (observes Professor Chaussier,) ne fait point d'impression sur ceux qui ne sont pas accoutumés à réfléchir, à observer, à en suivre les conséquences: les instructions, les moyens de persuasion, échouent contre l'entêtement et l'obstination."

This conviction has induced several of the prefects of the departments to issue orders that no child should be admitted to partake of the benefits of any of the public charities or establishments, that shall not appear to have been vaccinated. In imitation of this praiseworthy conduct on the part of the French magistrates, the founders of the Royal Metropolitan Infirmary for Children, in London, have resolved that the medical officers of that institution shall be empowered to withhold the benefits of that charity from those children whose mothers shall object to vaccination, without any very solid reason. Had some such resolution as this been adopted by the officers of every other medical or philanthropic institution in England, the prejudices of the major part of the lower classes of society against the salutary measure under our consideration, would, ere now, have been greatly diminished, if not wholly removed. The great legislator of the Jews, knowing how conducive to the health of his people

it was to enforce cleanliness, among other measures of hygiene, made it a precept that every child should, at its birth, be subjected to a certain operation, the purport of which was of very trifling importance compared to that for which vaccination might be made obligatory on every parent by a law of the land.

Professor Chaussier having concluded his address, the report of the central committee of vaccination, on the number of children vaccinated during the years 1818 and 1819, was read by Mr. Husson, the perpetual secretary of the society. This document presents an *ensemble* of the plans uniformly adopted in most parts of France for the propagation of vaccine, which deserves our best consideration. These plans appear so admirably calculated to attain the desired end, that we are surprised at their not having been more generally followed even in France. In those departments where the prefect has deemed it his duty to extend his authority to the practice of vaccination, the best effects have ensued, and the numerical results from the occurrence of natural small-pox, compared with those derived from the inoculation of cow-pox, are by far more favourable to the latter. Admonitory as well as compulsory instructions have been published; persons employed in public capacities have been readily persuaded to have their offspring vaccinated; their servants, being soon convinced of the utility of that practice, hastened, with little hesitation, to imitate their masters; while the shopkeeper, the petty tradesman, the independent manufacturer, and the husbandman, tacitly availed themselves of a salutary measure, which they saw adopted, with so much apparent earnestness and benefit, by their superiors.

In every small town, borough, or village, vaccine matter has been deposited, from the best sources, in the hands of the clergyman, the medical practitioner, or, in the absence of them, the principal housekeeper. Ambulating vaccinators, on whose skill and integrity the prefect could rely, have been appointed to journey from one place to another, and either to vaccinate themselves, or teach the individuals abovementioned to practise with safety and dexterity that operation. Forms of registers have been drawn up, and copies of them furnished to all those who are to perform vaccination; and, lastly, sub-committees have been appointed by the prefect in the principal towns of his district, charged to collect all the information from minor places, with a view to draw up an annual report, which is forwarded to the central committee at Paris. To encourage the tardy, and to reward the zealous,—premiums, some pecuniary, others honorary, have been established, and apparently with the best effect.

There is a class of persons in France, to whom the operation of vaccinating children can with propriety be confided,—namely, that of midwives; for in that country, where midwifery is held in proper consideration, and its importance fully felt, no

woman is allowed to practise as a midwife who has not had a regular education at the great establishment of the Maternité, at Paris; where, amongst other useful qualifications, the female pupils are instructed in performing the operation of vaccination. This latter circumstance affords the French a greater facility than we possess in this country for propagating the cow-pox, as the only means of extirpating the dreadful contagion against which it is known to act specifically. There is now scarcely a village of any consequence in France in which there is not a resident midwife, qualified in the manner we have just described, and who has, moreover, been brought up to love and cherish the salutary practice to which our efforts, in the present article, have been directed.

We have no room to enter further into the details of administration relative to the propagation of vaccination in France, contained in the first part of the Report; and proceed, therefore, to the second part, or division, of this important document. This, properly speaking, is more interesting even than the former to medical men, as it professes to give an account of the principal medical facts connected with vaccination, with which the central committee have become acquainted through their numerous correspondents.

The first of these facts relate to the irregularity observed in the progress of the pock after inoculation. Cases have been known to occur in which the pustule has furnished, after the fourth day, well-formed lymph, from which other children have been vaccinated, when the pustule was found to have lost that degree of precocity. Instances where the first appearance of the insertion having succeeded, manifested itself on the seventh, eighth, ninth, and as late as the thirteenth day, have occurred on various well authenticated occasions.

It is now placed beyond doubt that the vaccine matter will occasionally give rise to the spontaneous eruption of many more pustules in different parts of the body, the matter of which is perfectly good for inoculation. Of this fact we have ourselves been witnesses in more than one instance; and it goes far, in our opinion, to show that there is a general action produced by the vaccine virus on the constitution, besides the local effect which arises from it.

Thirteen medical men have seen examples of vaccination proving the means of curing other eruptive diseases, the *crusta lactea* in particular; and it stands recorded in the present Report, upon unimpeachable authority, that the inoculated cow-pox has effectually cured scrofulous swellings, ophthalmia, chin-cough; and has appeared to exert a beneficial influence in cases of epilepsia, hemiplegia, and sciatica.

The Report is full of the experiments that have been repeatedly made with a view to ascertain the efficacy of vaccination

in subjects who were subsequently inoculated with the small-pox, or exposed to its contagion. The result has been uniformly favourable to the doctrine of the immortal Jenner. Four instances are detailed of mothers, attacked with the small-pox, safely suckling their infants that had been vaccinated.

All the above facts, many of which have been observed before, were confirmed during the prevalence of varioloid epidemics, which have of late years partially ravaged some of the provincial districts of France. Mr. Lejeune, for instance, relates that, in the village of Claye, (department of l'Aisne,) of thirteen children, one only, that had been vaccinated, resisted the small-pox by which the other twelve were attacked, and of which four of the twelve died.

The influence which the cow-pox seems to exert over the small-pox has been strongly illustrated in those individuals who, having been vaccinated after exposure to the variolous contagion, have experienced a disease extremely mild in all its characters.

The Report lays a great stress on the comparative rarity of the small-pox in places where vaccination has been much and generally practised.

It then goes on to notice the pretended cases of failure, and observes that

"Lorsqu'on analyse tous ces faits, on arrive toujours à un des résultats suivans: ou la vaccination quoique pratiquée n'a été suivi d'aucun développement, ou l'opération a produit une vaccine fausse et non préservative, ou, comme nous l'avons vu précèdemment, la variole a éclaté pendant le cours de la vaccine, ou enfin on a pris pour une petite vérole contagieuse, une éruption qui a avec elle quelques points de ressemblance, et que pour cette raison on peut appeler *varioloïde*."

Some few of the cases themselves are next given, and carefully analyzed; and we hesitate not in saying, that the conclusions of the reporter seem correct.

We cannot conclude our account of this very instructive pamphlet without quoting, in the original language, the parallel drawn up, with great care and truth, between the real small-pox and the chicken-pox; respecting whose identity or dissimilarity so much has been said and written in this country.

"Nous ne parlerons pas des symptômes, par lesquels s'annoncent les deux maladies: ces symptômes, généralement communs aux maladies éruptives aiguës, ne différent que par leur plus ou moins d'intensité, et cette différence n'est pas encore assez constamment uniforme pour qu'elle puisse seule être caractéristique; mais nous nous arrêtons à la fièvre qui se manifeste dans les deux affections, et nous ferons observer que, dans la petite vérole vraie, elle dure trois ou quatre jours; que, si elle diminue ou cesse à l'apparition des boutons, c'est pour reparaître avec la suppuration, entre le neuvième et le treizième

jour: lorsque, dans la petite vérole bâtarde ou volante, elle ne dure qu'un jour ou deux, et est quelquefois à peine sensible.

"Dans la vraie, l'éruption ne commence qu'après trois jours de fièvre, et se montre d'abord au visage, au cou, à la poitrine, et successivement aux autres parties du corps; les boutons augmentent insensiblement, et n'ont acquis leur grosseur qu'au bout de quatre ou cinq jours.

"Dans la fausse, l'éruption parait tout-à-coup à la fin du premier jour, quelquefois du second, et rarement le troisième; elle se fait presque simultanément sur les différentes parties du corps, et sans cet ordre régulier que suivent, à leur sortie, les boutons de la petite vérole.

"Dans la vraie, les pustules, une fois formées, présentent un léger enfoncement au milieu de leur sommet; d'abord rouges, elles blanchissent ensuite, et sont environnées d'une aréole de couleur rosée.

"Dans la fausse, elles sont sphériques à leur sommet.

"Dans la vraie, ces pustules sont remplies d'une sérosité qui se transforme en une matière purulente, exhalant une odeur nauséabonde particulière.

"Dans la fausse, elles ne contiennent, même au point de leur plus grande maturité, qu'une lymphe blanchâtre et transparente.

"Dans la petite vérole, le desséchement ne commence que le onzième jour de la maladie.

"Dans la vérolette, les pustules laissent transsuder l'humeur qu'elles contiennent, quelquefois deux ou trois jours après leur sortie; elles se flétrissent, se dessèchent et tombent en écailles à la fin du sixième, huitième, ou dixième jour.

"Dans la petite vérole, l'éruption, la suppuration et la dessiccation forment trois périodes successives, bien distinctes l'une de l'autre par la durée, la première de trois jours, les deux autres de cinq jours chacune, ou environ.

"Dans la vérolette, ces trois périodes semblent se confondre, soit parceque leur durée n'excède pas six ou huit jours, soit parcequ'elles se manifestent à-la-fois, et qu'il résulte de cette intermixtion que beaucoup de pustules sont déjà sèches sur différentes parties du corps, pendant qu'on en voit d'autres en pleine maturité ou même naissantes.

"Dans la petite vérole, il survient avant l'exsiccation un gonflement général de la peau, sensible sur-tout à la face, aux mains, et quelquefois tellement marqué aux paupières, que les malades peuvent être momentanément privés de voir la lumière.

"Dans la vérolette, le desséchement n'est précédé d'aucun gonflement, ou du moins il est presque insensible.

"Un des caractères les plus notables de la petite vérole, est cette rougeur prononcée que conservent pendant long-temps, sur la figure, les individus qui viennent d'en être atteints, tandis que les marques laissées sur la peau par la vérolette, sont à peine rouges, ou que les rougeurs, si elles sont apparentes, ne tardent pas à s'effacer.

"Les cicatrices que laisse la petite vérole, sont plus ou moins profondes; leur surface est inégale.

"Dans la vérolette, elles n'offrent point d'inégalités, et sont plus

ou moins lisses ou unies; différences qui doivent résulter de celles que présente l'état inflammatoire dans l'une et l'autre éruption.

"Enfin, la petite vérole, même discrète et de moyenne intensité, est une maladie qui dure quinze ou vingt jours, et dont l'issue est quelquefois funeste.

"La vérolette, au contraire, se termine quelquefois en cinq ou six jours, ou huit ou dix au plus, et personne n'en a jamais été victime.

"Telles sont les différences essentielles qui établissent entre les deux maladies une ligne évidente de démarcation, à l'aide de laquelle on doit nécessairement se garantir de toute erreur; différences qui, abstraction faite de la nécessité qu'il y a d'en savoir bien faire la distinction, pour être en état de repondre aux attaques dirigées contre la vaccine, ont toujours été importantes à reconnaître, puisqu'on a vu autrefois des individus, trompés par l'idée qu'ils avaient d'avoir été soumis à l'invasion de la petite vérole, se dispenser de chercher dans l'inoculation de cette maladie un préservatif coutre ses coups meurtriers, et payer de leur vie cette fatale persuasion."

But, after all, where is the triumph of the antivaccinist, supposing even that all the pretended cases of reported small-pox after regular and perfect vaccination were true? Have not the advocates of the Jennerian discovery one million for every such case, in which vaccine has proved the best and the surest protection against that terrible scourge the small-pox? Nay, is it not agreed on all hands, that, even where the natural small-pox has actually invaded a person who had been regularly vaccinated, (and such instances, well made out, are few in number,) the disease has run its course in a milder manner than it is known to do under different circumstances, and has seldom, if ever, proved fatal to the patient? Are there not at this moment whole districts,—nay, kingdoms,—altogether free from the variolous pestilence, since the propagation of the Jennerian discovery? and what more can man expect from the work of man?

The Report is signed by Chaussier, president; Corvisart, Delasteyrie, Doussin-Dubreuil, Hallé, Huzard, Jadelot, J. J. Leroux, Parfait, Pinel, Salmade, Duchanoy, Alibert, Bourdois, Guerbois; and Husson, secretary; and is followed by an ordinance of the minister of the interior, decreeing the distribution of one premium of 3000, two of 2000, and three of 1000 francs each, to the individuals who most distinguished themselves in propagating vaccination; and the awarding of gold and silver medals, for the same reason, to upwards of two hundred persons, all of the medical profession, with one single exception.

A voluminous Table follows the Report, containing the names of the departments, their population, the number of births, of those vaccinated, those attacked with the small-pox, those rendered infirm or disfigured by that disorder, those who died of it; the proportion of vaccinations to the number of births, the names of the operators; the amount of the expenditure for pro-

moting vaccination; and general observations. The total result taken from this Table, occupying twenty-six pages, may be collected from the following recapitulation:

	Population.	Births.	Vaccinations.	Subjects who had the Small-pox.	Deformed or infirm from it.	Died of Small-pox.	Proportion of Vaccinations to Births.
81 Departs. 1818.	.....	722,589	442,945	43,939	2,392	6,171	1 in 1⅗
81 Departs. 1819	.....	835,550	425,510	52,036	4,264	6,586	1 in 2
Total.....	27,135,119	1,558,139	868,455	95,975	6,656	12,857	1 in 1¾

Amount of expenses in the two years ..... 1818 .... 95,292,57; 1819 .... 101,914,33 } 198,206,90 fr.

Memoria sopra il Metodo, &c. Memorial on the Method of extracting the Stone from the Urinary Bladder by the Rectum. By Andrew Vacca Berlinghieri, Prof. of Clinical Surgery in the University of Pisa, &c.

(From the Medico-Chirurgical Review and Journal of Medical Science.)

We were the first, we believe, to call the attention of our countrymen to the new method of performing the operation of lithotomy, originally proposed by Mr. Sanson, a French surgeon, in our observations on a case where that method was adopted by Prof. Barbantini of Lucca.* On perusing Prof. B's account of the *recto-vesical* operation, by which our attention was first called to the subject, we were forcibly impressed with the advantages which it appeared to us to possess over both the *lateral* and *high* operations; and in our notice of Prof. B's memorial, we ventured to express our opinion, and to recommend in strong terms the consideration of the subject to English surgeons. What impression our sentiments, on the recital of the case alluded to, made on the minds of our readers, we know not; but we now feel much satisfaction in being able to show that we were not singular in our opinions, since they seem to coincide with those formed and acted upon by one of the most celebrated Italian surgeons of the present day, Professor Vacca of Pisa, of whose interesting Memorial, published a few months

* See Medico-Chirurgical Review for April 1820, No. 8, p. 631.

ago, we shall now proceed to give as clear and succinct an analysis as we can.

Professor Vacca is already too well known to the medical world to require any encomiums from us;—his present Memorial, we believe, will not detract from his fame. He begins by disclaiming all credit in the invention of the *recto-vesical* operation, and gives the whole merit of the discovery to Mr. Sanson; showing by a quotation from Vigetius, who was a veterinary surgeon, that he speaks only of extracting urinary calculi, by the rectum, from brutes, when the bladder has been accidentally ruptured: he anticipates, however, a greater degree of success than the original proposer had, in calling the attention of surgeons to the *Sansonian operation*, from his being able to support it by more numerous and satisfactory cases.

"I think," he says, "I can show by not a few observations what simple reasoning induced Mr. Sanson to believe, that the *recto-vesical* operation for the stone deserves by every title a preference to all others, not indeed as recommended by Mr. Sanson, or as performed by Mr. Dupuytren, and several Italian surgeons, but by a different method, which Mr. Sanson, however, described as possible."

Our author next takes a view of the different methods that have been adopted for extracting calculi from the bladder, and of the advantages and disadvantages attending each; through the whole of this we need not follow him, but shall merely notice his opinion of the only two methods that are likely to be put in competition with that under consideration—the *high* and *lateral* operations. Of the first of these Prof. V. at one time thought very highly and frequently practised it, but more extensive experience has induced him to change his opinion. The great danger of peritoneal inflammation and of the extravasation of the urine, independent of the difficulty which often arises in the performance of this operation from the thickness and contractions of the recti muscles, and contracted state of bladder over large stones, are more than sufficient, our author thinks, to counterbalance the only two advantages which the high operation possesses over all other methods known before 1817, that of enabling us to extract stones of any size, and of certainly avoiding injury of the important blood-vessels. Prof. V's objections to the *lateral* operation are its exposing the patient to the risk of hæmorrhage, or an injury of the rectum; to the danger arising from the size of the stone, requiring, either that it should be broken, or the patient subjected to another operation. The two first occurrences our author allows may by care be avoided, and that the necessity for another operation may be a rare occurrence, but he has often experienced the difficulty himself, and felt for the prolonged suffering of his patients, in breaking down and extracting large stones. "Hence," he con-

cludes, "that although the incision in this operation may be easily and speedily performed, the extraction of the stone may become a laborious, long, and painful process—presenting difficulties which have been felt by all the ablest lithotomists, as the works of those who know alike how to publish their successful and unsuccessful operations sufficiently attest;" p. 25; and we may add, as all who have seen but a few operations for lithotomy performed must be fully impressed with—who have witnessed the sufferings of the unfortunate patient, tortured under the attempts of the surgeon to extract a stone too large to pass, except by bruising and lacerating the parts through which it is dragged, or the tedious and painful grappling and digging to extract its broken fragments. Surely if there is a shocking operation in surgery it is this; and most sincerely do we congratulate surgeons on the prospect of their being exempted from the performance of so painful a task, and mankind in general from such dreadful sufferings.

Of the superiority of the new method we shall let our author speak for himself.

"The recto-vesical operation," he observes, "seems to unite all the principal advantages and to present the fewest inconveniences. I need not call to the minds of my readers their knowledge of minute anatomy to persuade them that there is no point of the perineum nearer to the bladder than that which is immediately anterior to the sphincter ani. There is not much ingenuity required to perceive, that by cutting in this point the sphincter, the parietes of the rectum, the membranous part of the urethra, and the prostate, by an incision, which divides but few soft parts, we shall have procured an opening sufficiently large for the entrance of our fingers, our forceps, and the egress of the stone; because we take advantage of the natural aperture of the anus and of the cavity of the rectum. The most general notions of anatomy suffice to convince us that an incision which divides the anterior part of the sphincter ani, the membranous part of the urethra, in the middle line of its anterior (INFERIOR) parietes, the neck of the bladder, the prostate and fundus of the bladder in the same line, does not approach any large vessel or other part important to life. It is clear also that by this method the stone will pass between the rami of the ischium when they are very far separated, and when they in consequence have an ample space for the passage of the largest stones. It is also evident, that the direction and shortness of the wound render impossible any extravasation of urine; render the wound itself less extensive, and the exit of any fragments of stone that may remain in the bladder more easy.

"The depth of the wound being less than by the other methods, the surgeon is enabled to penetrate farther into the bladder with his finger to ascertain the form, size, and situation of the stone previous to his grasping it for extraction.

"By the *recto-vesical* operation, then, we avoid the danger of wounding the large vessels of the perineum; and, as in the high opera-

tion, we are enabled to extract the largest stones, without the inconvenience of laying bare the peritoneum, and of exposing the surgeon to the risk of wounding it, or of the danger of extravasation of urine." P. 25, &c.

The objections that may be stated to the *recto-vesical* operation are chiefly two—its wounding the rectum, and secondly, its establishing a communication between the rectum and bladder, and admitting the contents of one cavity into the other, by which a sterco-urinary fistula may be formed. To the *first* objection in the present state of our knowledge of the structure of the rectum, an answer is scarcely required. The *second* appears a much more weighty objection; our author answers it however satisfactorily.

"This inconvenience is not a necessary attendant on the extraction of the stone by the rectum, but of the peculiar method to which Mr. Sanson seems to give the preference, and which Mr. Dupuytren and other surgeons have adopted. It may easily be avoided by dividing the urethra, the prostate and neck of the bladder only. By this process the incision of the intestine is at least an inch lower than that of the neck of the bladder;—the parietes also of the neck of the bladder remain in contact, being separated only during the passage of urine; by this method also the parietes of the intestine perform the office of a valve, which prevents the passage of the fæces into the bladder." P. 32.

In support of this the Professor refers to his cases.

The description of our author's method of operating is rather tedious: we shall give the essentials. The instruments required are a common grooved staff, a common straight bistoury, a pair of forceps, and, in some cases, a very narrow straight bistoury, its point terminating in a small button. The patient is placed and secured in the same way as for the common lateral operation. The staff is first introduced and given to an assistant, who takes care to keep it firm, the handle perpendicular to the pubis, neither inclining it to one side or other, but so that the groove part shall correspond to the middle line of the urethra or raphe. The flat edge of the bistoury being closely applied along the palmar aspect of the index finger of the left hand, to avoid the intestine being wounded during the introduction, they are to be carefully introduced into the rectum, the back of the finger being directed towards the sacrum, its palmar aspect, upon which is applied the bistoury, towards the symphysis pubis. In this way they are to be carried into the intestine to the distance of ten or twelve lines; the finger is then to be pressed backwards towards the sacrum, so as to admit of the cutting edge of the bistoury being turned towards the anterior part of rectum, its back now resting on the finger; taking care that the cutting edge of the bistoury points directly to the

raphe of the perineum; the index finger, upon which it rests, is now to press the bistoury forwards, so that it shall divide the anterior part of the intestine; with the right hand the bistoury is then to be withdrawn, so as to continue the incision, then begun in the rectum, through the cellular substance between it and the urethra, the external sphincter of the anus and beyond it, not more than eight or nine lines, in the perineum. The first incision being thus finished, the index finger of the left hand is to be introduced into the wound, immediately beyond the divided sphincter, and the groove of the staff sought for with the nail, (which it is said should always be long when the surgeon performs this operation)—this being felt through the parietes of the urethra, the same bistoury is to be introduced guided by the nail of the finger, so as to divide the urethra, the nail and point of the bistoury being now in the groove of the staff, still retained firmly in its original situation, the bistoury is to be pushed forward along the groove into the bladder, so as to divide the prostate and neck of that viscus to a greater or less extent, according to the operator's idea of the size and form of the stone. As we are very apt however to err on this subject, the Professor thinks it will be better to make rather a small wound of the neck of the bladder and prostate, as, if necessary, it may be easily enlarged by the straight bistoury, having the small button at its extremity. We need not follow our author through the remaining part of the operation, which is the same in this as in the lateral. With regard to the dressing of the wound, Prof. V. enters a strong protest against introducing any substance whatever between the edges; an unnecessary piece of advice this, we believe, for English surgeons. Frequent washing, so as to maintain the parts perfectly clean, is all that is required. To allay the pain, opium given in small or large doses, according to circumstances, diluting mucilaginous drinks, the application of leeches about the anus, and in the robust even copious general bleeding, with the strictest diet, till all danger of inflammation is over, are the means used by the Professor.

The danger of inflammation being over, and suppuration established, our author thinks it necessary to begin to touch that part of the wound which corresponds to the incision of the rectum, and that portion which remains in the perineum, with lunar caustic. This practice is said to accelerate the cicatrization in a wonderful manner, and in the only one of his patients where the wound was not speedily cured, he attributes the circumstance to the neglect of this practice by his assistant, he himself being obliged to leave the hospital for some time. Professor Vacca thinks the *vagino-vesical* operation equally applicable to women as the *recto-vesical* to men; though, in the former, the fundus of the bladder should be cut, and the neck of that viscus

and urethra avoided. One case of stone in a woman has alone presented itself to our author, since he became acquainted with the new method; urgent symptoms compelled him to operate, but her pregnancy rendered it, in his opinion, imprudent to do it by the vagina.

We now come to Professor Vacca's cases, which are reported by his pupils, and as we consider them very interesting, we shall give a short notice of each.

The *first* is a patient of 70 years of age, much emaciated. Having endeavoured to allay the irritation which this poor man suffered from the stone and a stricture of the urethra, the operation was performed on the 7th of February, 1820; a purgative of cream of tartar having been administered the day before, (a practice which is followed in the school of Pisa before all great operations,) and the rectum cleared by an injection the morning of the operation. The operation was executed with ease. The extraction of the stone, however, presented great difficulties; it was of a large cylindrical form, the extremities pointing to the ischia; from this position it was found impossible to move it; it was therefore broken and extracted in three pieces; the stone was rough, and to one of the fragments adhered some soft membraneous filaments. This last circumstance induced the Professor to think that the stone had been adherent to the bladder. Tepid water was injected into the bladder to remove any fragments that might remain. The operation thus finished, the patient was laid in bed, and as he had lost very little blood, and suffered much, eight leeches were immediately applied to the perineum, and four over the pubis.—Twenty drops of laudanum were given—fomentations ordered to be applied to the hypogastrium, and the patient kept on the lowest diet, having abundance of diluent drinks. In the evening the irritation was calmed, but a slight fever had appeared; urine mostly by wound, a small quantity only by natural passage. Next day pain and tension of hypogastrium with increase of fever. Day following symptoms still increased; more leeches applied. Towards evening of this third day after operation he died. On examination, peritoneum was found inflamed, coats of bladder much thickened, and a puriform fluid effused between muscular coat and peritoneal, also into cellular membrane between bladder and pubis. Internal membrane of the bladder appeared gangrenous, and some fragments of the stone were found attached where probably the stone had adhered. The liver much enlarged.

Second case was a healthy country boy of five years old—operated on May 4th, 1820—whole operation performed with ease—six leeches applied round anus immediately after—towards evening slight fever with uneasiness of hypogastrium to

which four more leeches were applied. On fourth day after operation a few drops of urine passed by urethra, but it was not till the eleventh that it came regularly in small quantity by urethra, and continued to augment; on the 20th June this boy was discharged with a small fistula in perineo, from which a few drops of urine escaped every time he passed his urine. This, as we have already noticed, Prof. V. attributed to the application of the caustic being neglected. The boy after some time was taken back to the clinical ward, and when Prof. V's observations were published, a small fistula still remained.

Third case was a countryman, aged 38 years, of a cachectic habit, who had suffered for two years, about which time the calculus seemed to have passed from the pelvis of the kidney into the bladder. This patient had his symptoms much increased by a rough journey of fifty miles; a few days after his arrival in clinical ward, he was attacked by a dysenteric affection. This affection having abated after some time, though there still remained some fever, urine charged with blood and mucus and the alvine evacuations continuing about seven a day, the operation was resolved on, from the urgent entreaties of the patient, and the hope that the dysenteric symptoms, &c. might be symptomatic of the presence of the calculus in the bladder. The incision and extraction of the stone, which was rough and of the size of the largest pigeon's egg, were performed with facility. Twenty drops of laudanum were given. Day after operation fever was less than day before it was performed, the alvine evacuations were fewer, urine almost entirely by wound, a few drops only by penis. Second day free from fever, though towards evening it returned with tension and pain of hypogastrium; eight leeches and fomentations were applied to this region, though patient was very weak—alvine evacuations much diminished; urine, partly from wound, partly by natural passage, less charged with blood and mucus. From this time patient went on well, urine passing entirely by wound till eighth day, when a few drops began again to pass by urethra, and the quantity continuing to augment daily; on the fifteenth the whole urine flowed by the natural passage when patent was in horizontal posture, though a few drops passed by wound in the erect posture. Sixteenth day, slight œdema of face and lower extremities appeared without any evident cause. Eighteenth, urine came entirely by natural passage in erect posture. Twenty-fifth day from operation wound almost cicatrized, though slight degree of œdema still remained. August 30th, discharged cured from hospital, thirty days after operation. From fifth day after operation, whole extent of incision touched with caustic.

Fourth case occurred in a healthy countryman, aged 74 years, whose age seemed the only objection to operation. The pre-

paratory ounce of cream of tartar being administered, as usual, on preceding day, this patient was also submitted to operation on 1st August, 1820, after the exhibition of an enema. Nearly fifty calculi, varying from the size of a pea, to that of a small nut, were extracted in this case, and with these a small pediculated cyst containing a limpid fluid. Immediately after operation twenty drops of laudanum were given, and eight leeches applied to perineum; the lowest diet and copious dilution enjoined. Towards evening, fever with some tension of belly appearing, eight ounces of blood were taken from arm, and emollient fomentations applied. Next morning he was free from fever, which however returned with chills about eleven o'clock; and in the evening eight ounces more blood were taken from arm. The fever continuing to recur daily, without any pain or tension of abdomen, was suspected to be of the intermitting kind, and bark was administered, which speedily stopped it. On the eighth, urine began to pass by penis in small quantity, increasing daily by this way till 20th, when it passed entirely by natural passage. On 25th, sphincter, which is always *last part* of wound to heal, had nearly cicatrized and on 30th he was discharged completely cured.

Fifth case, a hatmaker, aged 38, of robust constitution.—Operation performed with ease, Sept. 24th, 1820—stone, from its friability, broke, which rendered extraction rather tedious. Fourteen ounces of blood were taken from arm immediately after operation. October 6th, urine passed entirely by penis—9th, a few drops again passed from wound for last time. In this case also intermittent fever showed itself, and yielded to bark in a few days.* October 27th, discharged cured.

The *sixth* and last case was a child two years old. The operation was performed with ease. A few drops of blood only were lost. Urine from first flowed in part from urethra. On 9th day after operation not a drop passed by wound. October 28th, discharged cured from hospital. Operation was performed October 14th.

Such are the cases operated on by himself, which Prof. Vacca brings forward in support of his opinion of the *recto-vesical*

* Both these patients, we believe, must have suffered at some former period from intermitting fever, which in them had been reproduced by the irritation of system from the operation. In countries subject to these fevers it is very common to observe the inflammatory diseases of winter, pneumonia, rheumatism, &c. accompanied by intermittent fever, in those subjects who have laboured under that disease during the preceding autumn, forming in these cases what may be called *symptomatic intermittent fever*, differing, however, from symptomatic fevers in frequently continuing after the disease which excited it has been removed, and requiring the administration of bark to remove it. Whatever excites febrile irritation in such ague-tainted constitutions, seems capable of reproducing this fever, though it does not follow that the removal of this irritation will put an end to this capricious fever.

operation, and which cannot fail to have very considerable weight, we imagine, in calling the serious attention of surgeons to the subject. In the perusal of these cases we remarked with pleasure the great attention which Prof. V. seems to pay to his patients after his operations, differing in this respect from some operators who seem to think the operation the only thing deserving of their attention—conduct which cannot be too severely reprobated, and of which, if we mistake not, it has been our misfortune to witness more than once the fatal effects—when after a fairly performed operation, the patient has been lost from inattention to the supervening symptoms.

To his own cases Prof. V. adds a brief account of five others, which have been performed in Italy, one by Dr. Farnese, a surgeon in Milan. Patient, in this case, was a healthy man of 50 years. The urethra, neck of bladder, and prostate, were divided; not the fundus of the bladder. The symptoms were mild—no feculent matter passed off with the urine, which, after 10th or 12th day, passed entirely by natural passage;—the wound was frequently touched by caustic, and in 33 days was quite cured. Dr. F. is about to publish an account of this case, with a memorial on the operation. Two cases have also been operated on with success by Prof. Geri, of Turin; they are published, though our author had not seen them. He knew, however, that in the first operation the fundus of the bladder was divided, and that feculent matter passed off by the urethra, with the urine; notwithstanding which, the patient was cured in a short time. The manner of operating adopted by Signor Geri, in his second case, our author does not know. The two remaining operations were performed by Prof. Barbantini, of Lucca; the result of the first we laid before our readers in a former number of our Journal. The fundus of the bladder, it will be recollected, was divided in that case, and the fæces entered that viscus and passed off by urethra; the patient had a small urinary fistula left. Prof. B's second operation was performed in the same way, and was one of those cases where an operation is performed as the only remaining, though almost hopeless, resource. The symptoms for first two days after operation were mild;—the feculent matter found its way into the bladder, and passed off with the urine. Peritoneal inflammation supervened and carried off the patient. On examination after death extensive organic disease of the bladder was observed; and much feculent matter had passed into that viscus. The case is not yet published.

The *recto-vesical* operation then has been performed in Italy, as far as we know, in *eleven* cases—of which *seven* have proved completely successful. In *two*, urinary fistulæ have remained as a sequel of the operation; and in *two* instances the operation

has been followed by the death of patient. It is to be observed, however, that both these were very unpromising cases; and that their death is probably in no way to be attributed to the mode in which the operation was performed. In the one case extensive organic disease of the bladder, which had been strongly suspected before the operation, was found to exist after death; and the other was a debilitated subject seventy years of age, who for twenty-four years had suffered from affections of the urinary organs; and where the extraction of the stone was rendered peculiarly difficult from its position, and its adhesion to the internal coat of the bladder, which itself appears also to have been in a diseased state previous to the operation.

With regard to the peculiar method of performing the Sansonian operation, all our present information appears in favour of that adopted by our author. In both cases the operation seems performed with equal facility, but the latter does not appear to be liable to the very disagreeable occurrence of the fæces finding their way into the bladder, which seems always to be the case in the former.

"It is proved," says Prof. V. "from all the observations now known on the subject, that the passage of the feculent matter from the intestine into the bladder occurs *only* where the fundus of the bladder is divided, the neck of that viscus, the prostate, and urethra remaining untouched, as we have before stated; and *never* where the neck of the bladder has been divided, the fundus being respected, as was done by Sig. Farnese, and as I have constantly done."

A moment's reflection on the relative position and structure of the parts concerned in this operation will sufficiently explain why the fæces are likely always to find their way into the bladder in the one method of operating, and not in the other. Prof. V. however, is not of opinion that the incision should, in every case, be confined to the neck of the bladder and prostate; he conceives it much better, where the stone is found of a very large size, to extend the incision into the fundus of the bladder, than to lacerate the parts by its forcible extraction. In this we perfectly agree with our author: the only risk arising from this extension of the incision for a short distance into the fundus of the bladder, is the contents of the rectum finding their way into the former viscus; but unless the incisions were carried far back, we do not think it near so likely that they would, as when the incision is entirely made in the fundus vesicæ.

We have now brought to a conclusion our analysis of Prof. Vacca's Memorial, of which it has been our object to give as full an account as our limits would admit, from the importance which we attach to the subject. Prof. Vacca has our sincere thanks for the information he has given us, and which we have taken the earliest opportunity of laying before our readers—

thus forwarding the object of his Memorial, which was to make more generally known in Italy the new method of operating, with the reasonings and observations upon which it was supported. If that distinguished surgeon has not, in the present instance, the merit of discovering, he certainly has that of improving, an operation, which, without having seen performed, we cannot help expressing our belief will, at no very distant period, supersede all other operations for the extraction of the stone. It seems to us, with our author, to possess all the advantages of the other methods of operating, with fewer inconveniences than any of them. The operation itself seems of easy performance, and void of any danger to the patient, as far as the incisions are concerned. It allows abundant space for the extraction of the largest stone, without bruising or lacerating the wounded parts; (this we consider its greatest advantage;) and hence obviates the necessity, in any case, of breaking down the stone—often a difficult, always a dangerous and painful operation; and when the stone, from its friable nature, is accidentally broken, the direct and depending opening which it presents will greatly facilitate the extraction of the broken fragments, and thus diminish the danger of nuclei for new concretions being left in the bladder.

A Treatise on Acupuncturation; being a Description of a Surgical Operation originally peculiar to the Japanese and Chinese, and by them denominated Zin-King, now introduced into European Practice, with Directions for its Performance, and Cases illustrating its Success. By James Morss Churchill, Member of the Royal College of Surgeons in London. Octavo, pp. 86. and plate of instruments. London, 1821.

Of the remedial measures which have been imported into Europe from the Asiatic and ultra-gangetic nations, shampooing, nose-making, moxa-burning, and acupuncture, are the most distinguished. When we consider the great antiquity of civilization among the Chinese and Hindoos, we cannot but conclude, that observation and experience must there have brought to light many important remedies, of which, however, we are almost entirely ignorant. Mr. Wafer, the surgeon of Dampier, relates that the Darian Indians employ a kind of acupuncture, for the purpose of local blood-letting.

"The patient is taken to a river, and seated upon a stone in the middle of it. A native, dexterous in the use of the bow, now shoots a number of small arrows into various parts of the body. These arrows are prepared purposely for this operation, and are so con-

structed that they cannot penetrate beyond the skin, the veins of which, opened by the puncturation, furnish numerous streams of blood, which flow down the body of the patient." P. 8.

It is very remarkable that this practice is common also in the Society Islands and at Otaheite, as we have been informed by a gentleman who visited those places with Vancouver, and described to us the process, almost in the words which Mr. Churchill uses. Leaving this curious coincidence between two widely distant and uncivilized tribes to the consideration of the naturalist or historian, we may remark that the process alluded to has no affinity to acupuncture as practised in the East, and now in Europe. Notwithstanding the boasted efficacy of the measure, according to the Japanese and Chinese, it did not attract general attention in Europe. In its favour, however, may be enumerated Ten-Rhyne, Bidloo, Kæmpfer, and Vicq-d'Azyr, but none of these had personal experience of the operation. Of late years several practitioners in France have performed acupuncture, and some favourable reports have been made in the Journals. Mr. Churchill's attention was lately directed to it by his friend Mr. Scott, of Westminster, who, he believes was the first who performed the operation in England. The success which Mr. Churchill observed in Mr. Scott's practice, led himself to its adoption; and the result, he observes, warrants a recommendation of the measure in the strongest terms.

The method of performing acupuncture is simple and easy to any one possessing common anatomical knowledge. It is only necessary that the operator should avoid the course of large vessels, nervous trunks, and the tendons of muscles—though it is not proved that the *latter* sustain any injury from the puncture of the needle. The operation as practised in Japan, is thus described in a historical work.

"'The place made choice of for the puncture, is commonly at a middle distance between the navel and the pit of the stomach, but often as much nearer to, or farther from, either, as the operator, after a due scrutiny, thinks most proper; and in this, and the judging rightly how deep the needle must be thrust below the skin, so as to reach the seat of the morbific matter, and giving it a proper vent, consists the main skill of the artist, and the success of the operation is said to depend. Each row hath its particular name, which carries with it a kind of direction, with regard to the depth of each puncture, and the distance of the holes from each other, which last, seldom exceeds half an inch in grown persons, in the perpendicular rows, though something more in those which are made across the body, thus,

. . .
. . .
. . .

"'The needles which perform the operation are made, as was hinted at first, either of the finest gold, or silver, and without the least

dross or alloy. They must be exquisitely slender, finely polished, and carry a curious point, and with some degree of hardness, which is given by the maker by tempering, and not by any mixture, in order to facilitate their entrance, and penetrating the skin. But, though the country abounds with expert artists, able to make them in the highest perfection, yet none are allowed, but such as are licensed by the emperor.'" 17.

It would seem, from the imperfect accounts that have reached us, that the Asiatics employ acupuncture chiefly in diseases of the abdominal cavity and viscera, such as colic, tympany, &c. but it is not in those diseases that our author has experience of the operation. The Indians themselves, however, extend the measure to most cases of cephalalgia, comatose affections, ophthalmia, &c. They puncture the chest, back, abdomen, &c. for affections of those parts, and also as a cure for dysentery, dyspepsia, hysteria, &c. It is only in "local diseases of the muscular and fibrous structures of the body," that Mr. Churchill has hitherto employed acupuncture, but he means to extend its use when opportunities occur. He considers the operation as inapplicable or injurious in diseases of an inflammatory character—a distinction observed by those who have practised this measure. M. Berlioz, of Paris, appears to have employed this curious means of relief pretty extensively, in local pains of a nervous character, and with much success. Speaking of the diseases to which acupuncture is applicable, M. Berlioz remarks—

"'Vague and wandering rheumatism sometimes attacks the external muscles subservient to respiration; the patient is obliged to remain motionless; every motion of the trunk compels him to cry out: a deep inspiration is very difficult, and coughing occasions such cruel pains, that expectoration is impossible. Acupuncturation dissipates instantly this state of distress, and renders to the muscles their full liberty of action. In the space of one or two minutes, a patient whose sufferings drew from him tears, exclaims he is quite cured.'" 29.

These observations are corroborated by the experience of Dr. Haime of Tours, who has lately published an interesting memoir on acupuncture, in the 13th volume of the "Journal Universel des Sciences Médicales." We shall quote a case as an example.

"A woman had suffered for several days with wandering rheumatic pains, which continued daily to increase in violence; there were, however, at all times fixed pains in the shoulder and in the right arm, which acquired such a degree of intensity by intervals, that the patient could not refrain from crying out. She was in this state when she came to consult me: finding, however, neither alteration in the pulse, nor increase of heat, nor redness of the skin, nor tension, nor swelling in the part affected, I considered the case to be simple rheumatalgia, and passed the needle in the middle of the arm, between

the fibres of the triceps brachialis muscle; the place designated by the patient as the seat of the pain. The pain was driven into the fore arm, and the second puncture caused it to descend into the hand, and a third being made in this part, caused it totally to disappear, and the patient said with delight and astonishment, she was cured; and was so satisfied with this treatment, that she spoke of it to every body." 36.

We shall now proceed to notice the cases which occurred in Mr. Churchill's own practice.

The *first* was a bricklayer, ætat. 30, who came to Mr. C's house supporting himself by a stick in one hand, and resting the other against the wall.

"The body was bent at nearly right angles with the thighs, and his countenance indicated acute suffering. He had been attacked, he said, three days before, with darting excruciating pains in the loins and hips; every motion of the body produced an acute spasmodic pain, resembling an electric shock; and the attempt to raise the body to an upright position was attended by such insupportable agony, as obliged him to continue in this state of flexion rather than encounter it by altering his position. There was no more constitutional disturbance than was to be expected from three days and nights of constant pain; the pulse was a little quickened, and the tongue white, but I attributed this derangement to the irritation set up by the pain and loss of rest. I directed him to place himself across a chair for support during the operation, and I immediately introduced a needle of an inch and a half in length into the lumbar mass on the right side of the spine; in two minutes time I observed that he seemed to rest the weight of his body more on his limbs, and in the next instant, without any inquiry being made, he observed, that he felt his limbs stronger from the "pain having left his hips." He next plainly indicated that the disease was lessened, by raising his body; from which he only desisted, by being desired to remain at rest, through fear of the needle being broken. The instrument having remained in its place about six minutes, the patient declared he felt no pain, and could, if he were permitted, raise himself upright; it was then withdrawn; the man arose, adjusted his dress, expressed his astonishment and delight at the sudden removal of his disease, and having made the most grateful acknowledgments, left the house with a facility as though he had never been afflicted." P. 49.

The *second* case was a young man employed in a timber merchant's yard, who, whilst in the act of lifting a very heavy piece of mahogany, was seized suddenly with a violent pain in the loins. The weight fell from his hands, and he was incapable of raising himself. He was immediately cupped and blistered on the part; but two days passed without much relief.

"On the third day the operation of acupuncturation was performed upon the part of the loins pointed out as the seat of the injury, which,

as in the former case, dissipated the pains in five or six minutes, and restored the motions of the back. He returned, however, the next day, with the same symptoms as at first, but in a mitigated degree. A needle was now passed to the depth of an inch on each side of the spine, which, as I expected, terminated the disease in a few minutes, and it was with pleasure that I understood the next morning, that the man had gone to his usual employment." 51.

We must pass over the other cases detailed by our author, in order to state some particulars of the effects of acupuncture on Mr. Scott, the gentleman who first introduced the operation into England. Mr. Jukes, of Westminster, received an urgent message from Mr. Scott, to visit him immediately. Mr. J. found him in bed, and with a countenance expressive of much anguish, having suffered, for three days, from severe pain in the loins, which he attributed to a sudden transition from a warm room to a foggy nocturnal atmosphere.

"Within the last 12 hours it had acquired such a degree of violence that even respiration was insupportable, except the body were fixed in such positions as permitted the least possible motion. An attempt to resume the erect posture, produced violent spasmodic action of the muscles of the back, which appeared to be communicated by sympathy to those of the abdomen and chest, impeding respiration with a convulsive effort; nor could any motion of the body be made without producing this distressing effect. Neither fever nor general derangement was present; the secreting organs of the body properly performing their function, proved the external locality of the disease. In this state of things, acupuncturation presented itself to us as likely to afford relief, and it was therefore immediately resorted to.

"'I applied an exhausted cupping glass upon the integuments, opposite to the second lumbar vertebra, and midway between this bone and the edge of the latissimus dorsi muscle, which was the part referred to as the most concentrated spot of the disease. As soon as a needle had penetrated to the depth of an inch, a sensation arose, apparently from the point of the instrument, which the patient described as resembling that which is produced by the passage of the electric aura, when elicited to a metallic point, diffusing itself at first to some distance around the part, and then extending itself up the side to the axilla. This sensation continued to be felt for the space of a minute, when a violent pain struck into the right iliac region, immediately above, and corresponding with the line of, the crista of the ilium. No pain was now felt in the back, except a dull aching of about two inches in breadth on the right side of the spine, extending from the lower part of the neck to the sacrum, corresponding with the situation and course of the longissimus dorsi muscle. The pain above the hip now began to subside, and in the space of three minutes from its commencement, had ceased altogether.

"'The uneasiness along the course of the spine still remaining, a needle was introduced about an inch from one of the upper dorsal vertebræ, and another in a corresponding situation to one of the lower

lumbar vertebræ. The pain in the right side was in a few minutes entirely dissipated, and the patient arose, declaring that, excepting a slight degree of uneasiness on the posterior part of the chest, near the angles of the inferior ribs, he was completely relieved from the disease. He, however, requested I would pass a needle in this last situation; on effecting which the pain soon left its last refuge, and the patient dressed himself, and left his house in the most perfect health. I have this day seen him, and he assures me that he has not experienced any return of the affection."

We shall conclude our analysis with one short extract, descriptive of the operation.

"The handle of the needle being held between the thumb and fore finger, and its point brought into contact with the skin, it is pressed gently, whilst a rotatory motion is given it by the finger and thumb, which gradually insinuates it into the part, and by continuing this rolling, the needle penetrates to any depth with facility and ease. The operator should now and then stop to ask if the patient be relieved; and the needle should always be allowed to remain five or six minutes before it is withdrawn. This mode of introducing the needle, neither produces pain (or at least very little) to the patient; nor is productive of hæmorrhage, which Dr. Haime says arises from the fibres being separated, rather than divided by the passing of the needle; the former of which (the absence of pain) is a point in its favour, which few surgical operations possess." 81.

We have now brought forward sufficient matter to excite the attention of our surgical brethren towards the publication of Mr. Churchill, and the operation of acupuncture—all that can be expected of us in this stage of the business.

Biography.

Biographical Account of A. F. Marcus, M.D. late President of the Royal Bavarian Commission in Franconia, and Director of the General Hospital at Bamberg, &c. &c. &c.

The subject of the present Memoir was born at Arolsen, on the 21st of November, 1753. The early indication of talent which he gave, and the rooted dislike he testified to the commercial situation for which he was originally intended, determined his parents to bring him up to medicine. He received the first elements of his education from private teachers; and in the thirteenth year of his age, entered the Gymnasium of Korbach, far better prepared than most boys of his standing. Here he attracted attention by the extraordinary facility with which he made himself master of the learned languages and the elements of philosophy; a facility the more deserving of remark, as it was conjoined with great power of retaining what he learnt,

with unwearied diligence, and with an ardent thirst for knowledge. We dwell more minutely on these qualities, that we may trace the causes which led to Marcus's future fame, and enabled him to overcome the impediments which fortune and religion had thrown in his way.

In 1769 he left Korbach and entered himself at the University of Cassel, then particularly distinguished by the lectures of Stein, perhaps the most celebrated teacher of midwifery in Germany. Marcus's principal object was to acquire a thorough knowledge of anatomy, which he here effected under Matzkopf and Huber. With this foundation he entered the University of Göttingen, in the year 1772.

The "Georgia Augusta" at that period, contained a combination of talent which entitled it, perhaps, to the first place amongst the German Universities. In every department of science, the professors were distinguished by their superior talent, particularly in Natural Philosophy and Medicine, which were taught by Baldinger, Richter, Wrisberg, Rud, Vogel, Murray, Erxleben, and Gmelin, men who never failed to communicate to their pupils that ardour with which their own labours were pursued. To Baldinger he was most indebted. This excellent teacher took every opportunity of encouraging young Marcus, directed his mind to proper objects of study, and particularly recommended to his attention the best English works on medicine. After three years study he received his degree as Doctor of Medicine, on the 21st of August, 1775.

The favourable circumstances under which one of his sisters was settled at Wurtzburg, induced him to visit that city, then celebrated over Germany for its clinical institution under the care of Siebold the Father, so distinguished for his surgical knowledge. A fortunate circumstance introduced Marcus to the notice of Adam Frederick, the Prince Bishop of Wurtzburg, to whom he had dedicated his Thesis. By this fortunate introduction he was enabled to gratify his favourite wish of practising in Bamberg. In 1778 Marcus left Wurtzburg, and commenced his career as a practical physician. He had formidable prejudices to contend with, for he was a Jew and a stranger; but he was fortunate in some of his early cases, and he distinguished himself by his prudent behaviour, agreeable manners, extended information on general subjects, and great powers of conversation.

In the first year of his residence in Bamberg, Marcus accidentally became acquainted with a man who proved the founder of all his future fortune and success. Francis Louis von Erthal, then Imperial Commissioner at Bamberg, consulted Marcus about some trivial complaint, and derived great benefit from his prescriptions. Raised soon afterwards to the dignity of Prince

Bishop of Bamberg and Wurtzburg, he did not forget his young physician, whose opening talents he had remarked, and whose future greatness he predicted. So great was his confidence in Marcus, that he shortly afterwards appointed him his physician in ordinary. Soon after this, Marcus renounced his religion, and was publicly baptized in the royal chapel, with much pomp, the prince being his sponsor.

We have already alluded to the amiable qualities of Marcus's mind. These daily endeared him more and more with the excellent prince, to whom his medical assistance had become indispensable. Yet, despising the intrigues and tinsel of a court, he chose rather to devote his influence and his time to the interests of humanity and science; and in a small German state, by the munificence of his prince, and by his own unwearied exertions, he raised institutions which were soon to become models for all Germany.

The first care of Marcus was to provide a proper teacher of midwifery, which had been much neglected in that part of Germany. The improvement of surgery was his next object; but he considered every measure incomplete without the foundation of a general hospital. This hospital was built under his direction, for the reception of 120 patients. The ground floor was destined for external, the upper floor for internal diseases. The wings of the building were appropriated to contagious disorders. A scrupulous attention to cleanliness and ventilation, the construction of baths, cheerful airy passages, abundance of beds and frequent changes of linen, nurses selected with peculiar care, and lastly, the beautiful situation of the house, in the midst of a large garden, situated at a convenient distance from a navigable river, rendered this hospital a model for neatness and comfort.

Marcus had been early impressed with the importance of clinical instruction; and the number of students which the fame of his new hospital had attracted, soon enabled him to gratify his favourite wish, of founding a clinical school. Perhaps no one was ever better fitted for the task, and he entered upon it with all his characteristic ardour. He carefully exercised his students in the taking of cases, and directed their attention to the investigations of pathological anatomy.

At the same time his attention was unremittingly directed to the improvement of the healing art in general. He appointed three teachers to the surgical school, which he placed on an entirely new footing; he brought medical baths into notice, and was executing other improvements, when the death of the Prince Bishop interrupted all his plans. While the death of his patron and friend deeply affected his mind and his prospects, it caused no diminution in his zeal. His influence lost, and his

income reduced, he could not pursue his meditated improvements; and he now devoted himself entirely to his clinical labours.

The death of the prince occurred in a very interesting period in medicine, precisely when the system of John Brown was beginning to be known in Germany. The state of medicine imperiously demanded a reform. The German physicians were followers of the humoral pathology, or else of what was called rational empiricism; but they could not be said to entertain scientific views of either. It was natural that the new and singular system of Brown should make a deep impression on the medical world of Germany, for it excelled particularly in those points in which the reigning theories were deficient; namely, in unity, and in a plausible explanation of morbid phenomena. It has been made a matter of bitter reproach to Marcus, that a mind of his acuteness should have been deceived by the Brownonian system, and that he should have done so much to propagate its dangerous doctrines. In this point he was associated with many eminent men of all nations, whom the lively mind of Brown delighted more than the uninviting doctrines of the humoral pathology. This system was a necessary evil; it was a step to something better, and by the experiments and discussions to which it gave rise, those scientific and philosophical principles were developed, on which medicine is now studied. His work, entitled "Clinical Examinations of the Brownonian System," had an amazing influence in promoting the Brownonian system in Germany, and brought a crowd of students from all parts, to learn these tempting doctrines from so celebrated a teacher. The originally insignificant Bamberg became the first medical school in Germany.

Soon after the system of Brown had shaken the venerable fabric of ancient doctrines, a remarkable revolution took place in German philosophy and metaphysics, through the labours of Schelling and A. W. and F. Schlegel. These men, the founders of that system of metaphysics, known in Germany under the name of *Natur-Philosophie*, had come to Bamberg to witness the clinical experiments of Marcus. He appears to have become intimate with them, and to have adopted the principles of their philosophy as the ground-work of his lectures.

In 1801 Marcus began to publish his "Magazin für specialle Therapie und Klinik." The object of this periodical work was to oppose empiricism; to give an account of his labours in the hospital, and to lay the principles on which he taught, open to the public. The first three numbers of this work were written in the spirit of the Brownonian theory. In the second volume the "Natur-Philosophie" prevailed. In the second number of the second volume, the Essay "On the Proceedings in the Gene-

ral Hospital of Bamberg," contains some very acute remarks on the relations of medicine to philosophy in general, and to the Natur-Philosophie in particular. In it Marcus explains his views of the application of the "Natur-Philosophie" to medicine, in much the same terms as he had formerly employed in speaking of the Brownonian system; and to the cutting reproaches that were made him on all sides, on his changes of theory, he thus replies:

"To the accusation that we are to day the slaves of one theory, and to-morrow do homage to another; we shall not plead guilty, until it has been proved, that we have not gained by the change. The Brownonian system, as originally introduced and recommended by us, even now, stands on an infinitely higher pinnacle than the party-coloured doctrines of ancient medicine. All that can be expected from us, who only aspire to the name of practical physicians, is, that we shall advance with the spirit of the times, that we shall look into the gaps in our own hedges, and seek the better where it may be found. To distinguish the particular error or failing of an individual is an easy task; but, it requires no little courage, no little firmness, and no little opportunity when once enslaved by the bonds of opinion, to break our chains and reconquer the freedom of the mind."*

At the occupation of Bamberg by the Bavarians, in 1802, a new and brilliant career was opened to Marcus. The new government offered him the honourable place of director of the Medical Institutions in the Franconian principalities. Marcus sought to make himself worthy of the confidence of the new government, by an extensive and salutary reform in the medical department of the principality. His first object was to provide, at the expense of government, proper medical attendants for the people and peasantry, in situations where poverty or want of population prevented regular practitioners from settling, and where quackery and spells usurped their place. Bavaria was the first country, and Bamberg the first district where this was adopted, and in the first year of the new government Marcus appointed twelve such practitioners, with salaries of 750 florins,

* We cannot help contrasting this defence of the ingenious and restless Marcus, with the calm and philosophical spirit which distinguished one of his contemporaries under similar circumstances. When all Germany was enlisted on different sides of this celebrated controversy, the opinion of Blumenbach was anxiously inquired by every one who visited Göttingen, in the categorical terms of, Are you a Brownonian, or an anti-Brownonian? to which his uniform reply was, I am no ———onian at all (Sind Sie Brownianer oder anti-Brownianer? Ich bin Kein ———ianer). After relating this anecdote at his lectures in his own exquisite style, Blumenbach observed, "To be serious, gentlemen, if during a space of forty years you had seen as many theories as I have, appear in the horizon of science, with all the splendour of the morning sun, and then sink into oblivion with almost the rapidity of its diurnal course, you would receive all new theories with extreme caution."

(about 75l.) This plan has since been adopted in all Germany.

The improvement of all the humane and medical institutions, as the Elizabeth Hospital, &c., and the foundation of a General Alms House, were the work of Marcus. One thing was still wanting; the establishment of a Lunatic Asylum on the genuine principles of medical police. The government appeared favourable to his wishes, and he set about it with eagerness. After deliberately digesting his plan, the house was built on the most simple but important principles. Not only the sexes were separated, but the different patients were divided into classes, according to the character of their insanity, and every well authenticated method of cure brought into use. This is, perhaps, the best institution of the kind in Germany. In order to supply the deficiency in the education of the common midwives, Marcus proposed to government to erect a new Lying-in-Hospital, which he effected. A scheme also of great novelty and utility was his institution for nurses, which fulfilled the double object of providing skilful nurses to individuals, and securing to this useful class of the community an asylum in their old age.

The University of Bamberg was dissolved in 1803, and no hopes appearing of its revival, Marcus employed all his influence, to have at least, a Medico-Chirurgical School, to which Walter and Kilian were invited. By the combination of this medical school with the Lyceum, the whole assumed more the appearance of academical education; as independently of medical and surgical instruction, lectures on history, logic, mathematics, philosophy, astronomy, and mineralogy were given.

Of the "Magazine for special Therapeutics, Clinical Medicine, and Medical Jurisprudence," three numbers appeared. In this there are some excellent articles, among which the Essay "On the Management of Clinical Institutions," truly deserves the name of classical. The "Annals of Medicine," were the joint production of Schelling and himself.

In his treatise, entitled "An Attempt to form a Theory of Inflammation," he maintains the identity of fever and inflammation, and places both in the arterial system.

The second volume of his "Special Therapeutics," is perhaps the best of Marcus's works; it is practical, the most important topical inflammations are described with infinite precision, and many shades and varieties of these diseases, hitherto unnoticed, are explained and illustrated. In speaking of catarrhal fever, Marcus ascribes it to inflammation of the mucous membrane of the trachea, and puerperal fever to inflammation of the peritoneum. Many cases of inflammation, as those of the heart and spleen, he describes as being by no means of such rare occurrence as is generally imagined. He enlarges very much on in-

flammation of the brain, and attempts, with much ingenuity, to establish its identity with typhus. Of antiphlogistic means of cure he speaks in terms of the most decided approbation, showing the greatest anxiety to restore to them their ancient rights in inflammatory disorders and fevers.

In his preface to the second part of his "Heads of Special Therapeutics," he expresses an anxious wish that he may live long enough to see the "antiphlogistic plan" every where triumph; and his wish was fulfilled, for his principles were adopted by his associates, and carried by his numerous scholars into every part of Germany. Marcus soon heard from them of their astonishing success in the treatment of fever and inflammation, by blood-letting and cooling remedies; and many ardent partizans of the Brownonian theory, who still defended a stimulating plan in fever and inflammation were convinced of their error, and adopted the antiphlogistic system.

In 1809 a prize question was proposed by Napoleon, the subject of which was Cynanche Trachealis. Marcus, in his dissertation on the subject, described it as a purely inflammatory disease, and strongly opposed the idea that it ever partook of a spasmodic or asthenic character. He conceived its seat to be in the trachea, and recommended all the usual antiphlogistic remedies.

In 1810 Marcus began the publication of his "Ephemerides of the Healing Art." The object of this work was to communicate to the public the daily proceedings in the hospital, the progress of epidemics, and the influence of the weather upon the production of disease. Great attention was paid to the relation of cases, and he also occasionally answered the attacks made upon his doctrines. He had abundant scope for such disputes; for in consequence of the war, typhus became epidemical in the year 1813, and the number of cases which he treated, confirmed him more and more in his opinion of the identity of this disease with inflammation of the brain. The excellent effects of blood-letting and the antiphlogistic regimen, corresponded exactly with the results of his dissections, and added great weight to the arguments he had advanced in support of his theory.

The typhus, from the increase of French prisoners, extended daily, and afforded him numerous opportunities of putting his theory to the test of clinical experiment. His diligent investigations led to an increasing vigour and boldness of his practice. Although Marcus's theory that typhus and inflammation of the brain were one and the same disease, was by no means generally allowed; still the greater and more respectable part of the German physicians were agreed on one point, namely, that inflammation and not debility, was its characteristic. Hence they were unanimous on the means of cure to be employed, and the

typhus occasioned by the war was treated with general and topical blood-letting, cold applications, and the rest of the antiphlogistic treatment.

Notwithstanding that the war was so unfavourable to literature in general, and to the publication of books in particular, the "Ephemerides" were regularly continued, and in a short time eight volumes were published. His "Treatise on Hooping-Cough," was the last work of Marcus, and the preface to this work was dictated on his death bed, but he did not live to see it published. It appeared on the very day he died. Marcus's object in this work was to prove the identity of hooping-cough and bronchitis, to show the general fallacy of the common theories on the subject, and the inutility of the remedies which as yet had been proposed. He sought to throw light on the nature of this disorder by a relation of accurate cases, and then pointed out what he conceived to be the most appropriate remedies. The very origin of this work was as practical as its execution; for the hooping-cough was epidemical in the spring and autumn of 1815, and Marcus did not neglect so favourable an opportunity for observation.

Most of his works are written in a light, easy, and rather elegant style, and where he can lawfully indulge in wit and irony, his touches are those of a master. The general character of his writing betrays a man of deep and original thinking, and if we view the extent of his labours as an author, we shall wonder at the fertility of his genius. If we reflect, that for the preceding twelve years Marcus edited two periodical works, and largely contributed to others; and that in that period he produced eighteen different works, we shall have great reason to admire his industry and scientific ardour. A zeal the more deserving of admiration, if we call to mind the awful and important times in which he lived. This is not the only cause why his memory should long be dear to his country; the general example of his life, his exertions as a member of the state, and the humanity and skill he manifested as a practitioner, are all points entitling him to our admiration. But we may view him in a still higher point of view, as the friend of suffering humanity, and in this character, the many valuable institutions which he founded in the beloved city of his birth will long be the proudest monument of his name. As a member of the state, the same qualities which made him so good a physician, rendered him a useful statesman. Discrimination, decision, and quickness, are essential to both situations; and when the great knowledge of mankind which a physician generally possesses, is combined with the habits and business of a statesman, they form, as they did in Marcus, an invaluable friend to the best interests of mankind.

Marcus's appearance was by no means prepossessing; he was small in stature, and rather inclined to be corpulent. The impression thus produced, however, soon wore off: he possessed great power of winning attention, was of an open, sociable temper, and fond of society and its pleasures. Here he was qualified to shine with peculiar lustre by the advantages of an excellent education, and by those polished manners which are to be acquired only in good society. He could, besides, contribute much to its pleasures by a thousand ways, and brought into it such cheerfulness, and so much wit, tempered always by good nature and good breeding, that he was equally a welcome guest to the serious and to the gay.

Marcus died on the 16th of April, 1816, in the 63d year of his age, of an affection of the hip-joint, which was accompanied by inflammation, suppuration, and hectic. All his fellow citizens followed the last remains of him who had so long conjoined the endearing character of a physician and friend.

There is abundant occasion to profit by the errors of Marcus, but there is still greater reason to admire and imitate him. Amidst the labours of an extensive practice, and the public duties to which he was called, he never remitted in his indefatigable zeal to advance his profession, and contribute to its improvement. He had this rare and invaluable quality, that he never was ashamed to own that he was wrong, and to reject whatever he was convinced was so, however brilliant it might appear. And he was well rewarded for his courage, and for his long and unwearied exertions, for he had the satisfaction of seeing the practice which he had laboured to establish, universally adopted.

Medical and Philosophical Intelligence.

Extracts from Correspondence with Thomas Stewart Traill, M. D. Liverpool, containing an Analysis of the Serum of the Blood, in which Oil was detected.

The individual in whose blood I lately detected *oil*, has since been attacked with well-marked inflammation of the liver, for which he was bled by his medical attendant Mr. Parr. To the kindness of that gentleman I was again indebted for some of the serum of his blood, which exhibited the colour and consistence of that described in the 67th No. of your Journal.

Its specific gravity = 1.018438, being somewhat less than the serum of the blood formerly drawn.

The bottle by which the specific gravity was found, contained 281.7 grains of serum; and this quantity was slowly evaporated on the hob of a grate, until the watery part was wholly dissipated. The surface

of the coagulum was covered by a very sensible portion of oil, which was transparent, of a yellowish colour, and perfectly fluid when hot, but became solid, opaque, and grayish white, at the usual temperature of the air.

I succeeded in removing the whole of the oil while it remained fluid, by successive applications of slips of bibulous paper, which had been previously weighed. The brittle coagulum was also broken down, and gently heated between folds of the same, until it ceased to stain the paper. The weight gained by the paper = 6.9 grains.

After the separation of the oil, the brittle coagulum weighed 39.3 grains.

From this the saline matters were separated by soaking it in distilled water; and the fluid, when evaporated, yielded 1.8 grain, principally consisting of cubic crystals of muriate of potassa and soda, with some lactates. Hence the solid matter of the serum consisted of 37.5 gr. albumen, and 1.8 gr. of saline matter. We may then estimate the composition of 281.7 grains of this curious serum as follows.

Water -	= 235.5	- - -	= 83.59
Albumen -	= 37.5	or in 100 parts -	= 13.31
Oil -	= 6.9	- - -	= 2.44
Salts -	= 1.8	- - -	= 0.65 nearly.

It appears to differ from healthy serum, not only in containing a considerable quantity of *oil*, but in a great excess of albumen, and a diminution of the saline ingredients; for, according to Berzelius, human serum contains about 8 per cent. of albumen, and 1.4 per cent. of saline matter.

I have some prospect of obtaining the blood of the same person in health, when a comparative analysis may throw some light on the change induced by disease.—*Liverpool, June 12th*, 1821.

The milky appearance of human blood has been remarked by different physiologists; and the following passage from the Philosophical Transactions of London for 1666, alludes to a phenomenon similar, in all probability, to that now under consideration.

"A curious *person* wrote, not long ago, from *Paris*, that they had, in the *house* of a *physitian*, newly opened a man's *vein*, wherein they found *milk* instead *of blood*.

"This being reported to *Mr. Boyle* at *Oxford*, his answer was, *That* the like *observation*, about white *blood*, had been made by a learned *physitian* of his *acquaintance:* and that the *thing* being by him looked upon as remarkable, he was desirous to have it very circumstantially from the same *physitian* himself, before he would say any more about it."—*Phil. Trans.* Vol. I. p. 100.

Liverpool, 26th July.—(*Edinb. Med. and Surg. Journ. Oct.* 1821.)

Cæsarian Operation.—At the meeting of the Royal Academy of Medicine at Paris of the 7th of July last, Mr. Beclard, one of the most distinguished surgeons of that capital, reported that he had, the day before, performed the Cæsarean operation, and that both the mother and child were doing well. The incision was made in the

direction of the linea alba. The report continues favourable down to the 10th of July, after which day we have received no further account.—(*London Medical and Physical Journal for Nov.* 1821.)

---

*Extra Uterine Conception.**—Among the aberrations of Nature (which fortunately are rare in the generative process) none are so truly deplorable as extra uterine conception. The following case presents many points of interest to the pathologist and physiologist, which we deem it proper to record.

"Dominica Mirone, 23 years of age at the epoch of her marriage, was, before that period, subject to vomitings, fluor albus, and hysterical affections. Seven years after marriage she became a mother, at the regular time. She had afterwards a seven month child. In December, 1817, she became pregnant for the third time, and this pregnancy lasted sixteen months. In the second month she had some show of the menses—in the third month she experienced pains in the lower belly, and a considerable serous discharge from the uterus. From the fourth to the thirteenth month she menstruated irregularly. In the fifth month she felt the fœtus; in the seventh very distinctly. These movements continued till the thirteenth month, principally in the left side. The breasts became enlarged in the sixth month, and furnished some milk in the seventh. In the twelfth month the breasts subsided to their original dimensions. About this period the woman felt what she conceived to be labour pains. In the thirteenth month a uterine hæmorrhage took place, and lasted some days. At different periods of the extra-uterine pregnancy she suffered dreadful colicky pains—frequently she had fever, and bilious vomitings. In the sixteenth month she was seized with acute fever, and died with symptoms of peritonitis."

Dissection.—On opening the abdomen, Dr. Rizzo found the peritoneum inflamed, and some gangrenous spots on it. A large and oval body was discovered in the abdomen, containing a fœtus enveloped in its membranes which were gangrened and burst. Two hydatids were attached to the chorion, containing a yellowish fluid. The chorion had contracted adhesions with all the neighbouring parts, especially the epiploon, colon, posterior face of the uterus, &c. The placenta was attached to the peritoneum covering the vertebral column. The situation of the fœtus was that of a natural pregnancy. The uterus was perfectly sound and natural. The left ovary presented nothing remarkable—the right one was obliterated.—(*Medico-Chirurgical Review for Sept.* 1821.)

Preservative against Scarlet Fever.—It is announced in the Journal de Medicina Pratique, of Berlin, that the Belladonna is a preservative against this fever. The fact was first discovered at Leipsic, but it has lately been confirmed by several experiments.—(*London Medical Repository for October*, 1821.)

* Memoria sopra una gravidanza estra-uterina. Par Laurent Rizzo.

*Neuralgia.**—This distressing disease becomes more common every day. It would seem as if the progress of civilization and refinement has a more than proportional effect on the *nervous system* of the human constitution, rendering it more irritable and morbidly sensible to the various agents around us, and consequently engendering a host of diseases to which our forefathers were but little subject, comparatively speaking. The following case is interesting and instructive.

A lady, 57 years of age, of strong constitution and good health, was bitten by a little girl who was delirious in fever. The wound was on the back of the second phalanx of the little finger of the left hand. No attention was paid to the circumstance; but, in a few days, pain commenced in the finger, spreading successively to the hand, forearm, and elbow, in the line of the cubital nerve. The wound was cauterized at a white heat, so as to destroy the nervous filament, but this measure produced no benefit, and the neuralgia ascended to the armpit, with increasing violence. Fomentations, fumigations, and large blisters were ineffectual, as were also embrocations, narcotics, the warm bath, &c. It was curious that each time she went into the bath she experienced a sensation of excessive *coldness* throughout that half of the body corresponding with the diseased upper extremity, and an intense *heat* in the opposite side. The equilibrium became restored as soon as she left the bath. Two applications, of fifty leeches each, to the arm, produced a temporary remission of the pain. The patient now experienced a sensation of tightness and stuffing in the chest, to which succeeded a violent cardialgia with vomiting of every thing taken into the stomach. These symptoms lasted six months.

It is to be remarked that the paroxysms of pain always commenced in the wounded finger, which induced the patient to request amputation of the joint. About this time there occurred, for a few days, a remission of the symptoms, after which, a new train ensued. The vomitings and cardialgia ceased entirely, (the neuralgia of the arm remaining as before,) but a copious diarrhœa took their place, and continued for two months. The neuralgia of the digestive organs now shifted to the uterine system, producing violent pain in the hypogastric region, and suppression of the menses.

M. Feron now applied the moxa near the elbow for fifteen minutes, which had an astonishing effect. The pain in the arm ceased—three days afterwards the chest became free—the diarrhœa disappeared—the appetite and embonpoint finally returned. This was in May; but, unfortunately, in October following, the neuralgic affection of the arm reappeared, together with the other constitutional symptoms before enumerated, and with the addition of an acute pain in the meatus auditorious externus. A new moxa was burnt on the arm, but not with the same success as before. It only caused a considerable mitigation for a time. The complaint is now periodically exasperated on certain days, and has continued altogether for fourteen

* Observation d'ue Névralgie Anomale. Par le Docteur Feron. *Journ. Comp. May*, 1820.

months. Time or a change of climate is looked to as the principal hope of cure or alleviation.

In the 4th number of the REVUE MEDICALE, M. Bosquet has made some pertinent reflections on this case. He particularly, and with reason, asks why M. Feron did not repeatedly apply the moxa, seeing that it entirely suspended the complaint for some months, in the first instance, and mitigated it in the second? Baron Larrey has had much success with this measure; but he does not content himself with one or two applications of the moxa; he burns it ten, twelve, or more times, and follows the pain wherever it takes up its domicile. In neuralgic affections, M. Delpech destroys the nerve by the actual cautery, and when the eschar separates, he permits not the wound to heal, but keeps up a long continued suppuration.—(*Medico-Chirurgical Review for Sept.* 1821.)

Dr. Jackson and Dr. James Johnson.—Dr. JOHNSON, of Spring Gardens, has addressed a letter to the Editor of one of the evening papers, on the subject of the yellow fever now ravaging the southern coasts of Spain. We transcribe it without a comment.

THE PRESENT EPIDEMIA IN SPAIN.

TO THE EDITOR OF THE COURIER.

Spring Gardens. Oct. 8.

SIR—At a time when a most fatal pestilence is ravaging the southern coasts of Spain, and exciting such terror in the neighbouring states as to induce them to put in force the most rigid quarantine discipline, it may not be uninteresting to the British public to know that a countryman of their own, the veteran Dr. Jackson, now, I believe, on the verge of seventy, went voluntarily, and at his own expense, last year (1820), to the scene of this fever's devastations, in order to ascertain whether or not it was contagious, and what were the most effectual modes of treatment. He has just published a volume, containing very curious and important observations on this dreadful epidemic. It is a consolation to know that this very able and experienced physician has proved, very satisfactorily, that the disease is of a local origin; that it never was imported into those countries where it now rages; nor is it possible, almost, that it should ever be transported thence to any distance among the states in its vicinity. Popular prejudice having assigned the disease a foreign origin, popular terror has clothed it in properties of the most virulent contagion; and this last error has so divested the people of common humanity, that not only are the sick and wounded abandoned to their fate, but those who fly to the open country or mountains, (where, in fact, the malady cannot exist, much less propagate itself,) are treated like contaminated deserters from a pest-hospital, and either left to starve or put to death by their barbarous countrymen. It is consoling, however, to be certain (and it is most certain,) that a few weeks more,—that is, the approach of cold weather,—will cut off the sources of the epidemic, (which could not be the case were it a common contagion,) and thus annihilate, at least for a season, the disease itself.

In proof that the disease is not personally contagious, Dr. Jackson brings forward the following, among other authentic facts:—"In the year 1800, when upwards of ten thousand people died at Xeres de la Frontera, sixty persons were employed to bury the dead. The buriers entered the houses where the dead lay,—took the bodies in their arms, often, it is presumed, in a loathsome state,—put them into the carts in heaps, and drove them to the place of interment. None of the buriers were infected." A somewhat similar event happened in the year 1819, at Saint Lucar. The buriers of the dead having shamefully abused their office, the friars of the Franciscan convent most nobly volunteered the interment themselves. "The offer," says Dr. Jackson, "was accepted; and the friars, on entering on the duty they had thus imposed upon themselves, found the majority of the houses, or sick apartments, deserted, the bodies of the dead lying in various postures upon beds or on the floors. They wrapped them in sheets, or in such other covering as presented itself in the apartment, carried them to the bier in their arms, and afterwards in the bier on their shoulders to the grave. Not one of the meritorious band was attacked by the disease." In short, from the records of the past and the evidence of the present, there is not the least reason to doubt that the epidemic now ravaging Andalusia is of the same nature, though perhaps more violent in degree, as those which have, in autumnal seasons, appeared in the same places, at longer or shorter intervals, for centuries. The poison, or malaria, which produces the disease, is the product of the soil itself, elicited by particular seasons; and the fever so generated, if directly exported to other countries, could not there be propagated, for want of its primary pabulum.

Such is the opinion of Dr. Jackson, who visited the dying, and examined with his own hands the dead, so lately as in October, 1820. It is also the opinion of the most enlightened English and French physicians who have visited the unfortunate theatre of the pestilence. Excepting the inconvenience, no harm apparently results from the quarantine precautions adopted by the neighbouring states; but the contagion conviction, impressed on the minds of those residing in and near the sickly towns and districts, gives rise to the most deplorable events, and deprives the unhappy sufferers of all succour or consolation from even their nearest friends or relatives! The operations of nature, however, and the revolution of the seasons, will soon put a period to the ravages of the epidemic. JAMES JOHNSON, M. D.

(*London Medical and Physical Journal for Nov.* 1821.)

Chemical Examination of the Human Teeth at different Ages.—The chemical composition of the teeth of man, and of the inferior animals, has long been made known by the labours of Fourcroy, Vauquelin, Berzelius, and Pepys; but the comparative examination of these substances, at the different periods of life, has not hitherto been undertaken.

M. Lassaigne, having procured a collection of human teeth, has investigated the subject, and published the results.* The process which

* Journal de Pharmacie. Jan. 1821.

he has employed in submitting to analysis the substances marked in the following table, is very simple. It consists in calcining to a white heat, in a crucible of platina, the substance; weighing it after the operation, to ascertain the loss consequent on the burning of the animal matter; dissolving the residue of the calcination in diluted nitric acid; precipitating the phosphate of lime from the solution by ammonia, and afterwards pouring a solution of subcarbonate of soda on the supernatant liquid, to precipitate the carbonate of lime.

Table exhibiting the Results obtained from Chemical Analysis of the Human Teeth at different Ages; and of some of their Appendages.

OBJECTS SUBMITTED TO ANALYSIS.	Animal Matter.	Phosphate of Lime.	Carbonate of Lime.
Teeth of a man aged 81, contain in 100 parts	33	66	1
Teeth of an adult	29	61	10
Teeth of a child, aged 6 years	28.5	60	11.5
Teeth of a child, aged 2 (first dentition)	23	67	10
Teeth of a child, aged 2 (second ditto)	17.5	65	17.5
Teeth of a child, aged 1 day	35	51	14
Teeth of an Egyptian mummy	29	55.5	15.5
Enamel of the human teeth	20	72	8
Gingival cartilage of a child, aged 1 day	86.7	11.3	2
Dental pulp of a child, aged 1 day	77	23	0
Dental sac	57	37	6
Rudiments of the teeth	40.5	38	21.5

(*London Medical Repository for* 1821.)

Hartshorn, its use in Intoxication.—Dr. Porter, a German physician, states that he has found the spirit of hartshorn (in the dose of a small tea-spoonful in a glass of water,) to counteract the inebriating effects of fermented liquors and spirits. (*Idem.*)

Cathartine, the active principle of Senna.—MM. J. L. Lassaigne and H. Fenuelle, in examining senna, obtained from it a particular principle, called by them cathartine. A decoction of the leaves was made, and, after being filtered, was precipitated by acetate of lead. The precipitate collected was diffused through water, and sulphuretted hydrogen passed through it. The liquor filtered was evaporated to dryness, and digested in alcohol, and the alcohol solution then evaporated to dryness. It contained acetate of potassa, which was separated by alcohol acidulated by sulphuric acid; then, filtering to separate the sulphate of potassa insoluble in this fluid, precipitating the excess of sulphuric acid by acetate of lead, decomposing this latter salt by sulphuretted hydrogen, filtering again and evaporating to dryness, a substance was obtained, which was considered the purgative principle of senna.

This substance is uncrystallizable, of a reddish yellow colour, of a particular smell, a bitter and nauseous taste. It is soluble in alcohol and water in all proportions; insoluble in ether. Its extract becomes moist in the air. It purges in very small doses.—(*Annales de Chimie*, xvi. p. 20.)

Piperin, or the active principle of Pepper.—Piperin is a new vegetable principle, extracted from black pepper, by Mr. Pelletier. To obtain it, black pepper was digested in alcohol repeatedly, and the solution evaporated, until a fatty resinous matter was left. This, on being washed in warm water, was left of a good green colour, and had a hot and burning taste: it dissolved readily in alcohol, and less readily in sulphuric ether; concentrated sulphuric acid gave it a fine scarlet colour. A solution of this substance in hot alcohol, being left for some days, deposited a number of small crystals. These were purified by repeated solution and crystallization in alcohol and ether, and from the mother liquors fresh portions were obtained, which, on purification, were like the first. It is to be remarked, that the pepper taste they possessed when impure, gradually left them as they became more and more pure; so that the white crystals scarcely had any taste, while it seemed to accumulate in the fatty matter, as the crystalline portion was separated from it; and also that, the purer the crystals, the finer the tint produced in them by sulphuric acid. The fatty matter left also reddened by sulphuric acid; but it is a question whether it would do so when pure.

The crystalline matter forms colourless four-sided prisms, with single inclined terminations; they have scarcely any taste. Boiling water dissolves a small portion, but it is insoluble in cold water; it is very soluble in alcohol, less so in ether; it is soluble in acetic acid, and crystallizes from it in feathery crystals. Weak sulphuric, nitric, and muriatic acids, do not dissolve or act on it; the strong acids decompose it. Strong sulphuric acid gives it a blood-red colour, which disappears on adding water; the substance does not seem altered if the acid has not remained long on it. Muriatic acid acts in the same way, producing a deep-yellow colour. Nitric acid makes it greenish yellow, orange, and then red; the ultimate action of the acid produces oxalic acid, and yellow bitter principle. It melts at about 212°. Destructive distillation converts it into water, acetic acid, oil, and carburetted hydrogen gas; no ammonia is formed. Oxide of copper converts it into carbonic acid and water. After comparing this substance with other vegetable principles, particularly with resins, Mr. Pelletier concludes by considering it a peculiar substance, and names it Piperin.

The fatty matter, left after extracting the piperin, is solid at a temperature near 32°, but liquefies at a slight heat. It has an extremely bitter and acrid taste; it is very slightly volatile, and tends rather to decompose than rise in vapour; that which passes over is not so piquant and acrid as the undistilled part, but is more balsamic. It dissolves easily in alcohol and ether, and unites to fatty bodies; and, with the exception of its taste, does not differ from them. From the

result of the distillation, it may be considered as composed of two oils; one, volatile and balsamic; the other, more fixed, and containing the acridness of the pepper.

Finally, Mr. Pelletier finds in pepper;—1. piperin; 2, a very acrid concrete oil; 3, a volatile balsamic oil; 4, a gummy coloured matter; 5, an extractive principle; 6, malic and tartaric acids; 7, starch; 8, bassorine; 9, lignin; 10, earthy and alkaline salts. He concludes, also, that there is no vegetable alkali in pepper; that the crystalline substance of pepper is a peculiar body; that pepper owes its taste to an oil but little volatile; and that a strong similarity exists between common pepper and cubebs, as illustrated by the analysis of Mr. Vauquelin, of the latter compared with the former.—(*Idem.*)

---

*New Extract of Opium.**—From some experiments upon *narcotine*, (one of the immediate principles of opium) which have been instituted by Dr. Magendie, this celebrated physiologist thinks it probable, that the very variable effects of opium are owing to the presence of the opposite principles, which enter into its composition. This opinion acquires greater probability, from the circumstance that persons, who take morphium, experience none of those exciting properties which the aqueous extract of the shops, containing both morphium and narcotine, produces on them.

Hence it appears that, of all the processes employed for the preparation of extract of opium, the best is that by which the separation of the narcotine is effected. The method which, with this view, has been proposed by M. Robiquet, is strongly recommended to the notice of apothecaries; for it very well accomplishes the proposed object, and the extract which it furnishes, has already been productive of excellent effects. It consists in macerating, in cold water, the opium cut into small pieces, as in making the aqueous extract. The liquid, when filtered, is evaporated to the consistence of a thick syrup; and the extract repeatedly agitated with ether in a suitable vessel. The ethereal tincture is then decanted, and submitted to distillation, in order to separate the ether. The operation is repeated as long as crystals of narcotine resulting from it, are obtained. When the ether no longer acts, the solution of opium is evaporated, and the extract prepared. As the same ether may again be employed in the preparation of extract, the operation is not so expensive as it might, at first sight, appear.

The ingenious process of M. Robiquet, for the preparation of this extract, is much superior to those proposed by Baumé and Nermann; in the former of which the opium is submitted to a six months' ebullition, in the latter, to an eight months' fermentation.—(*London Med. Repository for October*, 1821.)

Oil of Croton.—A good deal of interest has been lately excited among the profession respecting this *new* and curious substance, a

* Journal de Pharmacie, May, 1821.

single drop of which produces copious and sometimes violent purging. We have been favoured with a communication from John Flemming, esq. M. P. pointing out accounts of this medicine published by preceding authors, and also by himself, affording another instance of the adage that there is "nothing new under the sun."

Murray, in the 4th volume of his Apparatus Medicaminum, page 149, gives the following botanical description of the plant from whose seeds the oil is obtained.

"*Croton Tiglium*, foliis ovatis glabris acuminatis, caule arboreo, Linn. *Sp. pl.* p. 1426. Cadel-Avanucu, *Hort. Malab. Tom.* 2, p. 61. Rumphius also describes the plant and oil, in his *Herb. Amboin. Tom.* 4, p. 98.

We shall quote the following passage from Rumphius:—

"Sed tota stirps, potissimum tamen folia, valde acris, ita ut os, labia, fauces inflammatæ intumescunt, et ardor usque ad anum percipiatur. Radix granis mitior. Olim grana per totam Indiam Orientalem Crebro in usu fuerunt *ad lympham hydropicorum per alvum præprimis eliminandam*, in iis vero, quorum ventriculus debilis, simul emesis subsequuta. Fortioribus bina grana sufficerunt, aliis granum unum cum semisse. Variis aliis in morbis, *in quibus purgantia fortiora opportuna videntur*, ista in India adhibent. *Et hanc quidem acrimoniam oleo ipsi seminis inesse*, tam ex dictis, quam inde apparet, quod olei ex siccis granis expressi *gutta una* cum canariensi vino capta, vulgare apud chirurgos in India degentes purgans constituerit."—*Rumph. Tom.* 4, p. 98.

Another writer observes that the oil of croton rubbed about the umbilicus purges in the same manner as when taken internally.

In the 11th volume of the Asiatic Researches, Dr. Flemming has published a valuable paper on the Indian medicinal plants and drugs, in which the croton tiglium is thus noticed:—

"The seeds of this plant were formerly well known in Europe, uuder the names of *grana tiglia*, and *grana molucca*. They were employed as hydragogue purgatives; but, on account of the violence of their operation, they have been long banished from modern practice. For the same reason they are seldom used by the Hindù practitioners, though not unfrequently taken as purgatives, by the poorer classes of the natives. One seed is sufficient for a dose, being rubbed with a little rice gruel, or taken in a bit of plantain fruit."*

We think the medicine in question is deserving the attention of the faculty at large.—(*Medico-Chirurgical Review for Sept.* 1821.

Process for extracting Cinchonin from Cinchona.—The following process is given by M. Badolier (Ann. de Chimie et de Physique, tom. xvii. p. 273).—A pound of yellow bark, bruised, is to be boiled in three pints of a very dilute solution of caustic potash (*eau alcalisé par la potasse caustique*). After the ebullition has continued for a

* Some cases of tic douloureux have lately been relieved, and even removed, by a drop or two of oil of croton applied on the tongue. The effect on the nerve was almost instantaneous.—Ed.

quarter of an hour, the liquor is to be suffered to cool, and strained through a fine cloth with pressure; the residuum is to be repeatedly washed and pressed.

The cinchona thus washed is to be slightly heated in a sufficient quantity of water, adding gradually muriatic acid until litmus paper is slightly reddened, and stirring the mixture. When the liquor is near the boiling point, it is to be strained, and the cinchona strongly pressed; then add to the strained liquor, while it is hot, an ounce of sulphate of magnesia; after this, precipitate the whole with caustic potash, slightly in excess. When the liquor is cold, the precipitate is to be collected on a filter, washed, and dried, and then treated with alcohol, as directed by MM. Pelletier and Caventou, in order to obtain the cinchonin.

When sulphuric acid is added to the cinchonin immediately after the separation of the alcohol, crystals of sulphate of cinchonin are obtained, which, when washed with a little water, are of a very fine white colour.—(*London Med. Rep. for Nov.* 1821.)

Analysis of the Sulphates of Cinchonin.—M. Robiquet has analyzed three sulphates of cinchonin in the following manner, and with the annexed results. Equal quantities of each of the sulphates, which had been dried by the heat of a salt water bath, were dissolved in distilled water; and to each solution similar quantities of pure caustic potash are added. This decomposition effected with heat is attended with some peculiar characters. The solution becomes at first milky; and afterwards small oily drops swim on its surface; at last, when the heat has been long continued, the cinchonin coagulates, and unites into large white masses, which are opaque and very porous, and when these occur, the decomposition is complete. In order to finish the analysis, it remains only to filter the liquor, to separate it from the cinchonin, to wash the filter in the common manner, to supersaturate it with nitric acid, and to add a small quantity of nitrate of barytes.

The sulphate of barytes thus obtained, indicates, of course, that of the sulphuric acid contained in the salt under examination.

By this process, M. Robiquet analyzed the acidulous sulphate of the third crystallization, subsulphate of the first crystallization, and subsulphate of the third. The cinchonin, separated from the acid, did not contain any portion of sulphuric acid.

100 acidulous sulphate of cinchonin, third crystallization:

Sulphuric acid	19·1
Cinchonin	63·5
	82·6

100 subsulphate of cinchonin, first crystallization:

Sulphuric acid	11·3
Cinchonin	79·0
	90·3

100 subsulphate of cinchonin, third crystallization:

Sulphuric acid	10·0
Cinchonin	80·9
	90·9

(*Annales de Chimie et de Physique*, tom. xvii. p. 320.

Use of Nitrate of Silver in Medicine.—The *Giornale di Fisica*, tom. xi., contains, at p. 355, a paper by Il C. Sementini, on the use of nitrate of silver in cases of epilepsy. After remarking on the difficulty which occurs in treating such cases, and the good effects which have been observed in using the nitrate of silver, and its superiority in this respect over all other remedies, both as to the effect it produces, and the little inconvenience it causes; the Cavalier states, that to secure the good effects belonging to it, the nitrate of silver should be well triturated with the vegetable extract, in combination with which it is given; that the first doses should be small, and the quantity gradually increased to six or eight grains, or even more, in a day: that the use should not be continued very long together; and that the patient should keep out of the action of light. The latter precaution is necessary, to prevent the discolouration of the skin, which sometimes happens after a long and copious use of this remedy. The precaution, however, only regards avoiding the meridian sunlight.

It frequently happens, in the use of this medicine, that a species of cutaneous eruption, consisting of small pustules, occurs. This may be regarded as a certain proof of the good effects of the medicine.

In the early part of this paper, Il C. Sementini, in endeavouring to remove the impression existing against nitrate of silver, because of its poisonous qualities, remarks, that being mixed with vegetable extract, it is not really the salt, but the oxide, that is given; and, therefore, the observations of M. Orfila, on the nitrate as a poison, have nothing to do with the power of the remedy. At the same time, as an argument for using the nitrate in place of the oxide, it is remarked, that at the moment of decomposition a combination is, probably, effected between the extract and the oxide; and that actually the salt is found most efficacious.

Being assured of the use of nitrate of silver in epileptic affections, and reasoning upon its tonic effect, Il C. Sementini was induced to try its powers as a remedy in cases of paralysis. The first instance quoted is of a gilder, who, probably from the fumes of mercury, had become very paralytic. An eighth of a grain of nitrate of silver was prescribed at first, but the dose was increased every other day: by the time that three grains were taken the good effects were evident, and in twenty days more the man was perfectly restored. In another instance, every part of the body and limbs was paralyzed but the head. A small quantity was given at first, but it was increased to eight grains per day, and it effected a cure.

Three other instances are then adduced, in all of which cures were effected: and the Cavalier expresses his hopes, that, in the hands of other medical men, it will be found as effective and as important as in his own.—(*London Med. Rep. for Nov.* 1821.)

On a New Salifiable Base.—Dr. G. Brugnatelli, in pursuing his experiments on uric acid, has discovered a new salifiable base. This substance, with his experiments on it, have been described in a memoir read to the Royal Institute at Milan, on January 4, 1821. An abridged account of it is inserted in the *Giornale di Fisica*, t. iii. p. 464.

The new substance is produced by the action of liquid acids on uric acid. Those that have been used are the sulphuric, nitric, muriatic, and acetic; and the uric acid may be either that of calculi or of birds or snakes. It is formed by adding concentrated sulphuric acid, for instance, in small quantities at a time, to uric acid, until a thick paste is formed; it will occasion swelling, the liberation of gas, and a particular odour. When these signs have ceased, add water; the mass will become very white, and, on standing, will separate into two parts. The solid portion is a neutral combination of the new base with sulphuric acid. The fluid is a portion of this compound dissolved in the excess of acid, and containing impurities. The sulphate is but little soluble in water; but the solution, decomposed by alkaline subcarbonates, yields a white light flocculent substance, which is the base in question. Muriatic acid is, perhaps, better than the sulphuric for the preparation of this substance, inasmuch as the muriate is more soluble. Acetic acid requires boiling to form it, and nitric acid produces it among other products at the time of its violent action.

The flocculent matter collected on a filter, appears like gelatine; in drying it contracts and splits, and when pulverized has the appearance of an earth. It has no taste or smell. It is slightly soluble in water, alcohol, acids, and alkalies. The impure acid solution is eminently distinguished by its property of giving a very fine azure precipitate with triple prussiate of potassa, and which may readily be distinguished, after a few experiments, from that caused by iron. It may, perhaps, be applicable to dying or painting. The neutral combination of the substance with acids does not give the blue precipitate; it requires for this purpose excess of acid.

This substance combines with various simple bodies. With iodine it forms a compound at common temperatures, of a dull yellow colour, resolved by heat into its two principles. When fused with sulphur they unite together; its compound with phosphorus is of a fine red colour, and when dissolved in water, occasions the formation of phosphuretted hydrogen, and a phosphate.

This substance has extraordinary powers of resisting heat. It might be taken for an earth, or metallic oxide, in this respect. The following are given as experimental demonstrations of its properties. An acid solution, put on a plate of zinc, gave a yellow spot with metallic splendour. This, well washed, dissolved in an acid, and tested by triple prussiate of potassa, gave a blue-white precipitate; the blue colour being attributed to the new substance. The solution that had acted on the zinc gave no blue colour with the test, but only a white.

A portion of it mixed with lamp-black and oil, and heated violently in a crucible for half an hour, left a reddish crust, the solution of which, in acids, gave an azure precipitate with the triple prussiate.

The azure matter burnt in the fire with facility, and left a residuum of a bright red colour, if the heat had been intense; but if moderate and continued, the residuum is scarcely red, and when placed in water produces flocculi of the substance and bubbles of the gas.

Ammonia dissolves the substance, making it first yellow, then green: when heated moderately, a residuum is obtained of a yellow metallic colour; if more heated it becomes white, and does not seem to differ

from the substance first dissolved. The yellow matter dissolved in dilute acid gives a red tint to ferro-prussiate of potassa, which exposed to the air becomes green. Other changes take place.

Nitric acid appears to alter the nature of the new substance. When it is added in a concentrated state to the substance or its salts, the prussiate does not then produce a blue precipitate, but a yellow tinge. Sulphuric acid, when assisted by heat, offers similar phenomena.

One cannot help suspecting, that the blue precipitates in these experiments are occasioned by iron, and yet it is difficult to conceive how that metal, if present, should escape the observation of Dr. Brugnatelli. Further experiments are required, and of a more decisive nature, to clear up this matter.—(*London Med. Rep. for Nov.* 1821.)

Medeography.—Three vegetable productions, which might be advantageously employed in the practice of medicine have been recently imported by Mr. Desmoges from Senegambia. 1. The *anadec*, a wood which the natives of Cape Verd Islands boil with rice, and employ with great success in cases of dysentery. 2. The *lémé lémé*, a violent purgative, the use of which is pretty general among the negroes of that part of the coast. It is burnt and reduced to powder, like coffee. A tea-spoonful of the powder, taken in a glass of water, is the ordinary dose. 3. The *bougaune*, the fruit of a tree which grows in Gazamarne and the neighbourhood of Joal. When boiled, it is looked upon as a specific remedy against the cholic.—(*Tablettes Universelles.*)

Periodical Medical Publication in Spain.—A Medical Journal, to be published every ten days, has been announced at Madrid, under the title of "*Las Decadas Medico Quirurgicas.* The objects of this periodical miscellany, are—1. To inform the profession and the public of all the discoveries and interesting facts relating to medicine and surgery in Spain and in foreign countries. 2. To give an impartial account of modern theories, medical doctrines, &c. 3. To convey intelligence respecting all endemic diseases. 4. An account of extraordinary cures. 5. Miscellaneous queries and observations, with an analysis of medical publications appearing in Spain, including the more important ones published among foreign nations.—On receiving the above announcement, we immediately wrote to our correspondent at Madrid to supply us with the work, without loss of time, for the use of the Medical and Physical Journal.—(*London Medical and Physical Journal for Nov.* 1821.)

The Unicorn.—Mr. Campbell (the missionary) has kindly favoured us with the following description of the head of a very singular animal which he has just brought from the interior of Africa. We also have had an opportunity of seeing it, and fully agree with Mr. Campbell that the animal itself must have answered the description of the *Reem* or *Unicorn*, which is frequently mentioned in Scripture.

"The animal," says Mr. Campbell, "was killed by my Hottentots, in the Mashow country, near the city of Mashow, about two hundred miles N. E. of New Lattakoo, to westward of Delagoa Bay. My Hottentots, never having seen or heard of an animal with *one* horn of so great a length, cut off its head, and brought it bleeding to me upon the back of an ox. From its great weight, and being about twelve hundred miles from the Cape of Good Hope, I was obliged to reduce it by cutting off the under jaw. The Hottentots cut up the rest of the animal for food, which, with the help of the natives, they brought on the backs of oxen to Mashow.

"The horn, which is nearly black, is exactly three feet long, projecting from the forehead about nine or ten inches above the nose. From the nose to the ears measured three feet. There is a small horny projection of about eight inches immediately behind the great horn, designed for keeping fast or steady whatever is penetrated by the great horn. There is neither hair nor wool on the skin, which is the colour of brown snuff.

"The animal was well known to the natives. It is a species of the rhinoceros; but, if I may judge of its bulk from the size of its head, it must have been much larger than any of the seven rhinoceroses which my party shot, one of which measured eleven feet from the tip of the nose to the root of the tail.

"The skull and horn excited great curiosity at the Cape. Most were of opinion that it was all we should have for the unicorn.

"An animal, the size of a horse, which the fancied unicorn is supposed to be, would not answer the description of the unicorn given by Job, chap. xxxix. verse 9 *et seq.*, but in every part of that description this animal exactly answers to it."—(*Philosophical Mag.*)

Mode of obtaining Cinchonine and Quinine.—At page 389, vol. x. of this *Journal*, we have given some account of the chemical researches of M. M. Pelletier and Caventou, on cinchonine and quinine. But the mode of obtaining these new vegetable bases was omitted; we shall now lay it before our readers.

Two kilogrammes (about 4¼ pounds avoird.) of pale cinchona, bruised, were acted on by 6 kilogrammes (about 13¼ lbs.) of strong alcohol. This operation was repeated four times. The alcoholic tinctures were united, and distilled, to withdraw the alcohol. Care was taken to add 2 kilogrammes of distilled water, in order that the matter dissolved in the alcohol should be protected from the immediate action of the heat, after the separation of the alcohol. This substance, received on a filter, which allowed the aqueous liquid to pass through, was of a reddish colour, and a resinous aspect. In this state it was washed on the filter with water rendered slightly alcaline by potash. The liquor which had passed through the filter served for the first washing, after having been previously alcalized. After several days of edulcoration, the alcaline liquids passing limpid and colourless, the matter left on the filter was washed with a pretty considerable body of distilled water. The substance was then of a

greenish-white, very fusible, soluble in alcohol, and crystallizable. It was the cinchonin of Dr. Gomez. It possessed in this state some of the characters of resinous substances; but, on dissolving it in an acid very much diluted with water, it deposited a considerable quantity of a fat matter of a green colour, which had all the characters of the green fat matter obtained for the first time by M. Lauber, by the direct action of ether on cinchona. We may remark, that if too strong an acid be employed, a great quantity of the fat matter would remain in solution in the liquor, and the cinchonine, which we should subsequently obtain, would be polluted with it.

The acid liquor (dilute muriatic acid was employed) was of a golden-yellow. Evaporated, it yielded crystals soluble in alcohol, and in water. Its taste was very bitter. It fell down readily with alcaline solutions; the gallates and alcaline oxalates occasioned precipitates soluble in alcohol. The above solution was treated with pure magnesia at a moderate heat. The mixture, after thorough cooling, was thrown upon a filter, and the magnesian precipitate was washed with water. The first washings were yellow; but they soon became colourless. The magnesian precipitate, sufficiently washed and dried at the *balneum mariæ*, was treated three several times with alcohol of 40° (0.817). The alcoholic liquors, very bitter and slightly yellowish, gave by evaporation crystals, in needles, of a dirty white. These crystals, redissolved in alcohol, and made again to crystallize, gave a very white and brilliant crystalline matter. We may also obtain very white crystals by washing them in the cold with a little sulphuric ether. These crystals are pure cinchonine.

Quinine is obtained from yellow Peruvian bark, by employing the different processes indicated for the extraction of cinchonine. In case of a natural or artificial mixture of cinchonine and quinine, crystallization and ether may serve to separate these two bodies. Quinine is very soluble in ether, and does not crystallize.*

M. J. Voreton, of Grenoble, has given the following as an improved process.† He takes 5 kilogrammes of yellow bark of good quality, reduced to coarse powder. These are infused in water acidulated with about one hundredth of its weight of muriatic acid. After macerating 24 hours, he expresses strongly, and treats the matter with new acidulated water till the bark gives out no more bitterness. He then filters, and treats the united infusions with an excess of pure magnesia. This mixture is boiled an instant, and then allowed to cool. The remainder of the process is exactly conformable to that already known. Thus we filter, wash the magnesian precipitate with cold water, dry it, and treat it with alcohol. We obtain the quinine by distilling off the first portions of the alcohol, and evaporating the rest at a very low temperature.

By this process, more simple than that formerly published, since we avoid the preparation of the alcoholic extract, he has obtained from 5 kilogrammes of bark about 70 grammes of quinine, instead of 45 or 50, which was all he could obtain by the former process. This arises, he believes, from the muriatic acid dissolving more easily all the

* *Annales de Chimie et de Phys.* xv. p. 289. † *Ibid.* xvii. p. 439

quinine, when this is not enveloped by the fat or resinous matter of the alcoholic extract.

But the most economical and productive process is that of M. Henry, fils.* A kilogramme of yellow bark, (cinchona cordifolia) reduced into a pretty fine powder, was acted on twice with heat, by a dilute sulphuric acid, consisting of 50 or 60 grammes diluted with 8 kilogrammes of water for each time. The filtered decoctions were very bitter, and had a reddish colour, which assumed on cooling a yellowish tint. To discolour (blanch) these liquors, and saturate the acid, he employed pulverized quick-lime instead of the more expensive magnesia. The liquors, entirely deprived of colour, were passed through a cloth, and the precipitate which formed, was washed with a small quantity of water, to separate the excess of lime. The deposit (on the cloth,) well drained and almost completely deprived of moisture for twelve hours, after having been put three successive times to digest in alcohol of 36° (0.837), furnished by distilling off the alcoholic liquid, a brown viscid matter, becoming brittle on cooling. It was acted on with water sharpened with sulphuric acid, and the refrigerated liquor afforded nearly 32 grammes of white silky crystals, entirely soluble in alcohol, scarcely soluble in cold water, but more in boiling water, particularly if this was slightly acidulated. They consist of pure sulphate of quinina. Messrs. Pelletier and Caventou, while they approve of the above process, consider the product as overrated, probably from M. Henry not having sufficiently dried the sulphate obtained. The pure sulphate of cinchonina ought to be brilliant, crystallized in parallelipeds, very hard, and of a glassy white; the sulphate of quinina is on the contrary of a dull white, silky and flexible; both should be soluble in alcohol and should burn without leaving any residuum.†

In the *Journal de Pharmacie* for last September, M. Baup, of Vevai, describes the crystallized sulphate and supersulphate of quinina, as consisting, the first of—

Quinina	1 atom	45
Sulphuric acid	1 —	5
Water	4 —	4.5
		54.5

The supersulphate consists of—

Quinina	1 atom	45
Acid	2 —	10
Water	16 —	18
		73

The crystalline form of cinchonina is a rhomboidal prism, of 108° and 72° terminated by a bevelment.

MM. Pinel, Thenard, and Hallé, in a report recently made to the Academy of Sciences, on a Memoir of M. Choulant, entitled, "Ob-

* *Journ. de Pharm.* July, 1821, p. 296. † *Ibid.* July, 1821, p. 305.

servations on the employment of the Sulphates of Quinina and Cinchonina in Intermittent Fevers," give the following conclusions: The number of cases reported by M. Choulant is 14; in 10 of them the cessation of the fever was due to the sulphate of quinina, which occurred immediately after either the first or the second dose; and, in the latter case, the paroxysm that followed the first was considerably milder; the effectual doses varied from 6 to 12 grains. The reporters also state, that M. Double has administered the sulphate of quinina in tertian and quartan agues, with immediate and complete success, and almost always after the first doses. The small bulk of the medicine renders its administration easy in many cases in which the bark in substance would be inadmissible. The red or yellow bark seems to yield the most febrifuge quinina.—(*Journal of Science, &c. for Jan.* 1822.)

Preparations of Antimony.—M. Sexullas in a memoir, of which there is a copious abstract in the *Journal de Pharmacie* for September, shows, that all the antimonial preparations used in medicine, except carefully crystallized tartar emetic, contain more or less arsenic, which originally combined with the antimony in the ore, continues pertinaciously associated with it through all its modifications. He also proves in the same paper, that a very powerful pyrophorus is obtained, by treating tartar emetic in the same way as the mixture of alum and flour is treated for making the pyrophorus of Homberg. The curious details on this subject are reserved for our next *Journal*.—(*Idem.*)

Influence of Sea Air on the Human System.—M. Vogel of Munich, while spending some days on the banks of the Baltic, was told that different invalids, labouring under asthmas, &c., found themselves much better on sea than on shore. He then examined the air in different situations, and found that the sea air a league from shore, when admitted into an exhausted globe containing barytes water, did not trouble it, whereas the air, admitted into a similar globe on the shore, produced immediate turbidity. Nitrate of silver in solution, exposed to sea air, had some chloride formed in it. Hence he infers that the atmosphere of the Baltic, taken at a league from the shore, contains less carbonic acid than the ordinary atmosphere, and that it is probable the quantity of carbonic acid diminishes as we recede from the land. 2d, That the atmosphere of the Baltic contains muriates in greater or less quantity.*—(*Idem.*)

Uninflammable Clothes.—M. Gay-Lussac announced in the sitting of the Academy of Sciences, 6th Nov. 1820, that linen dipped in a solution of phosphate of ammonia became incombustible. MM. Merat-

* *Jour. de Pharm.* Oct. 1821, p. 461.

Guillot, father and son, apothecaries at Auxerres, have since shown that the acidulous phosphate of lime possesses the same property. In fact, linen, muslin, wood, paper, straw, impregnated with a solution of this salt at 30° or 35° of concentration (1.26 to 1.30), and dried, became absolutely uninflammable, and consequently unfit to communicate fire. They carbonize, or char, when they are exposed to a very intense flame, but the carbonization does not extend beyond the focus of heat in which they are plunged.—(*Idem.*)

On the Nerves: giving an Account of some Experiments on their Structure and Functions, which lead to a new Arrangement of the System. *By* CHARLES BELL, Esq.

This paper, consisting of an inquiry into the functions of the nerves of the face, is preceded by some general observations on the nervous system.

If the views which Mr. Bell has presented in this communication be found to be correct, a very important addition is undoubtedly made to our knowledge of anatomy; and a part of the system hitherto very imperfectly understood assumes a character of simplicity and order in contrast not only with the doctrines which have been taught in our schools, but also with the opinions of the most celebrated foreign anatomists.

When we speak thus hesitatingly, we allude to the prefatory part of the paper; with regard to the facts and observations in the body of it, there can be but one opinion—they are quite new to us, and lead to the knowledge of phenomena important both in theory and practice.

Mr. Bell's leading principle of arrangement for the nerves of the *frame of the body*, is to divide them into two systems; one for the supply of common sensibility and the power of locomotion, to be found in all animals which have nerves, even in those very low in the scale of existence—while the presence of the other system depends on the complication of the structure of the animal, being complex in proportion to the number of the organs of the animal economy, and to the variety of functions which those organs perform. When an animal has no heart or concentrate organ of respiration, there will be none of those nerves found, which in the higher classes give so much intricacy to the whole system; but when these organs are present, then new nerves are bestowed upon the animal, and these will be simple or complicated, according as the relations of the superadded organs are few or many. For example, all animals that have a *heart*, *lungs*, and *stomach*, have a nerve appropriated to these organs, but this nerve will be found simple or otherwise, according to the functions performed by the viscera. If an animal merely breathes, the nerve will be simple in its distribution and in its connexions; but if the office of the lungs be multiplied, if they be employed in producing the natural cries of animals, or combine with the organs of the voice so as to produce articulate language, or with the organs of the face, so as to express emotions, then the simple respiratory nerve will become com-

plicated, forming an intricate system of nerves for the combination of many remote parts in the acts of breathing, coughing, sneezing, hiccoughing, vomiting, &c.

This view, owing to its simplicity, is seducing enough, but its truth must be put to the test. The author brings the question very distinctly before us in explaining the variety of functions performed in the face.

In the head and face of man, and of the higher classes of brutes, there are two distinct sets of nerves which pass to the same parts. Anatomists have hitherto supposed that this twofold provision was for increasing the nervous power, and for securing its influence by numerous communications in parts liable to accident. But Mr. Bell, in opposition as far as we know, to all anatomists and physiologists who have preceded him, has proved these two classes of nerves to be entirely different in functions.

By cutting across one of them he deprived the muscles of the face, and particularly of the nostril, of all power of motion in consent with the act of respiration; but this was not the only effect produced, for at the same time all that animal activity in the features which indicates passion, was destroyed. But it is very remarkable, that whilst those particular functions of the muscles of the face were suppressed by cutting one set of nerves, the muscles still retained their full power when employed in other functions, as, for example, in the act of eating. The next set of experiments is equally curious. Upon cutting across the other class of nerves, leaving that which controls the action of respiration entire, the sensibility of the skin and the action of the muscles in mastication were destroyed, whilst all those operations which we might suppose are the most delicate, as belonging to the act of breathing and expression, continued unimpaired.

We need scarcely add that these experiments were made upon brutes; but numerous examples of injury or disease of the nerves of the human face prove, that the same distinction or classification of functions exists in the human countenance.

We look forward with much interest to the promised paper on the Nerves of the Neck and Throat—and shall then endeavour to lay before our readers more detailed observations on the new views which Mr. Bell's investigations suggest to the physiologist, and on their probable importance in the practice of physic and surgery.—(*Idem.*)

On the detection of Arsenic in Ores of Antimony.—The following is the process of M. Serulas, by which he detects arsenic in antimony. The antimony, or its oxide, is mixed with cream of tartar, and heated in a close crucible; in this way an alloy of the antimony with potassium is formed. The alloy is then placed under a bell-glass filled with water, and a large quantity of hydrogen is soon liberated. This, when burned in a narrow glass jar, deposits a brown pellicle on its sides, if the antimony contains arsenic, but no pellicle is produced if arsenic be not present. Very small quantities may be detected in this way.—(*Idem.*)

Propagation of Sound in Elastic Fluids.—Mr. Van Rees has given the results of his experiments on the propagation of sound on elastic fluids, made with great care, and under the auspices of MM. Frameyer and Moll. The following are some of the results:—

	Velocity 10° of Centig. theorem.
Hydrogen	1233.3 metres.
Ammonia	432
Vapour of water, temp. 54° cent.	422.6
Carbonic oxide	341.1
Azote	339.0
Carburetted hydrogen	377.4
Oxygen	317.7
Deutoxide of azote	317.4
Sulphuretted hydrogen	305.7
Hydrochloric acid	298.8
Carbonic acid	270.7
Protoxide of azote	270.6
Vapour of alcohol	262.7
Sulphurous acid	229.2

(*Journal de Physique, Jan.* 1821.)

Effects of Metallic Salts on Blue Vegetable Colours.—In a series of experiments, lately made on vegetable colours, Mr. J. Murray has discovered the remarkable fact, that subacetate of lead, nitrate and sulphate of copper, nitromuriate of platinum, nitromuriate of gold, &c. turned syrup of violets, tincture of cabbage, columbine, blue hyacinth, &c. *green;* and that, when these colours are even reddened by acetic or citric or carbonic acid, &c. the metallic solutions *restore the original blue* colour. Boracic acid reddens the yellow colour obtained from *reseda lutea*, and so do the metallic solutions. It seems evident, therefore, that we have yet to learn the invariable characteristics of alkalies and acids.—(*Medical and Physical Journal for December*, 1821.)

Spina Bifida.—Through the kindness of Mr. Jukes, the very respectable practitioner of Peter street, Westminster, we have been allowed to inspect one of the most remarkable cases of spina bifida (if, indeed, it be not the only one of the kind on record,) that we had ever seen, heard, or read of. The subject is a young woman, now aged nineteen years, who was born with a small vesicular swelling at the lower extremity of the dorsal spine, which swelling has kept increasing every year, so as to have now reached a size considerably larger than that of an ordinary man's head. It contains a transparent fluid, which occasionally oozes, in very small quantities, through the integuments by which the tumour is formed. This young woman has enjoyed good health ever since, and menstruates through an open sore in the fleshy part of the right thigh. We entertain no doubt that Mr. Jukes, who has attended the patient for a long time, would procure, willingly, to any respectable member of the profession who should wish to

inspect this pathological phenomenon, the means of doing so, on a slight remuneration being made to the parents of the patient, who are in needy circumstances. Mr. Jukes has led us to hope that we shall soon be enabled to lay before our readers a more circumstantial account of this case, with a drawing of the part, from himself.—(*Idem.*)

Journal of Experimental Philosophy.—The fourth Number of Dr. MAGENDIE'S excellent Journal has been laying before us for some time. It contains, 1, a continuation of Dr. ROULIN'S Inquiry into the Nature of the Movements and Attitudes of Man. 2. Observations on a Rupture of the Stomach in the Horse, by Mr. DUPUY. 3. On the Organs which tighten or relax the Membrane of the Tympanum and the Ossiculi of the Auditory Apparatus, in Man and mammiferous Animals, by Dr. MAGENDIE. 4. Note on the *Pian*, a pustulous Eruption of the Skin common in the West Indies, by ROCHOUX. 5. Considerations on the Organic Derangement called *Melanose*, by BRESCHET. 6. Anatomical Examination of a Dog, having only one Eye and no Mouth, by MAGENDIE. 7. On the Use of Electricity in Concussions of the Brain, by GONDRET. 8. An Abstract of Mr. CHARLES BELL'S System of Nerves. 9. Chemical Analysis of the Guttural Ganglions of the Trisplanchnic Nerve in the Horse, by LASSAIGNE. 10. Case of *pernicious* Intermittent Fever cured with a small Dose of the Sulphate of Quinine, by MAGENDIE. This Number is illustrated with four plates: the first of which represents the comparative anatomical structure of the ossiculi in the ear of twelve different mammiferous animals; the second, a variety of views of the same organs in man; the third, some representations of the monoculous and astomic dog described by Dr. MAGENDIE; and the fourth, several diagramatic illustrations of the paper on muscular motion.—(*Idem.*)

Medical Instruction.—The French government has determined to establish a School of Medicine at Lyons. Besides the usual course of Lectures delivered by the physicians and surgeons of hospitals, there will be a class for clinical medicine, a second for internal pathology, and a third for therapeutics and materia medica. The professors' chairs will be filled by persons who shall have undergone certain probatory examinations, in the presence of the members of the administration of hospitals, assisted by a jury of medical practitioners.—(*Tablettes Historique, August*, 1821.)

*Ruptured Perineum, &c. in Parturition.**—This is a very awkward accident, and will sometimes occur where the ablest accoucheurs are employed. In our own practice, these ruptures always happened where the perineum was well supported, and we never recollect seeing an instance of it where women were delivered before the arrival of the doctor, (no uncommon incident,) and consequently where the

* Revue Medicale, M. Montain.

perineum was left to its fate. We do not therefore agree with M. Montain, that the accident is invariably owing to neglect in the accoucheur. Some authors employ the suture, others leave the process of reparation to Nature. But to the case before us. The labour had been a laborious one, and turning was necessary. A month after delivery our author found the woman under fever, with a fetid discharge from the vagina, the latter being found filled with *fæces*, the fourchet, perineum, sphincter, and rectum torn, and forming a great and terrible wound, confounding the two passages. The wound presented no appearances of commencing cicatrization. Suture was therefore determined on, and the needle passed pretty deep, probably including a portion of vagina. One stitch only was employed, and was found sufficient to keep the sides of the wound in contact for a considerable space. To facilitate the discharge from both passages, an elastic gum tube was placed in each, and the thighs brought together, while the patient was ordered to lie on her side. All discharges were carefully washed from the parts, and an amendment soon appeared. The fever subsided, and on the 8th day the compresses were removed. Two days afterwards the ligature was also removed, the cicatrization being complete. In a month the patient was considered as perfectly well. (*Medico-Chirurgical Review for Dec.* 1821.)

A new Gum-Resin.—Mr. Lambert, of Lower Grosvenor-street, the well-known botanist, and one of the vice-presidents of the Linnean Society, has committed to our charge for examination, a new gum, from Guiana, sent to him by a medical gentleman in the island of St. Vincent, who states, that the native Indians of that part of the new Continent use it in fumigations for coughs and other pulmonic complaints, with success. The gum is the produce of a large tree growing on the mountains of the inland parts of Guiana, and is probably a species of amyris. The gum itself is called by the natives, *akyari;* it has a resinous appearance externally, and is electric. The mass we have, and which we purpose to submit to chemical examinations at our earliest convenience, is neatly enveloped in leaves of a species of musa.—(*London Medical and Physical Journal for Dec.* 1821.)

QUARTERLY LIST OF NEW FOREIGN MEDICAL PUBLICATIONS.

The Miscellaneous Works of the late Robert Willan, M. D., &c. &c. By Ashley Smith, M. D. 8vo. Price 12*s.*

Observations on the Diseases of Females. By Charles Mansfield Clarke. Part II. Royal 8vo. Price 15*s.*

The Principles of Medicine on the Plan of the Baconian Philosophy. Vol. I. on Febrile and inflammatory Diseases. By R. D. Hamilton. 8vo. Price 7*s.*

On the Nature, Symptoms, and Treatment of the different Species of Amaurosis, or Gutta Serena. Illustrated by Cases. By J. Stevenson, Esq. Surgeon-Oculist to his Royal Highness the Duke of York, &c. &c. Price 7*s.* 6*d.*

Lectures on the Structure and Physiology of the Male Urinary and Genital Organs of the Human Body, and on the Nature and Treatment of their Diseases. By James Wilson, F. R. S. 8vo. 14*s.*

A Manual for the Student of Anatomy; containing Rules for displaying the Structure of the Body, so as to exhibit the Elementary Views of Anatomy, and their application to Pathology and Surgery. By John Shaw. 12mo. 10*s.*

A System of Pathological and Operative Surgery, founded on Anatomy, and illustrated by Drawings of diseased Structure, and Plans of Operations. By Robert Allan, F. R. S. 8vo. Vol. II. 12*s.* 6*d.*

Virey, Histoire des Mœurs et de l'Instinct des animaux, avec les distributions Méthodique et Naturelles de toutes leurs classes; cours fait à l'Athenée Royal de Paris. 2 tom. 8vo. 18*s.*

—— Atlas des Figures d'Animaux (ou tom. 3), gr. in 8vo. £1 16*s.*

Jalade-Lafond, Considerations sur les hernies abdominales, sur les bandages herniaires renixigrades, &c. &c. 2 vol. fig. 18*s.*

Recherches sur l'Inflammation de l'Arachnoïde Cérébrale et Spinale. Par MM. Duchatelet et Martinet. Paris, 1820. 1 vol. 8vo. pp. 608.

Recueil de Memoires de Chirurgie. Par le Baron Larrey. Paris, 1821. pp. 320.—Plates.

Pratique des Accouchemens; ou Memoires et Observations choisies sur les faits les plus Importants de l'Art. Par Mad. Lachapelle. Paris, 1821. 1 vol. 8vo. pp. 524.—Tables.

Traité des Maladies de l'Oreille et de l'Audition. Par J. M. G. Hard. Paris, 1821. 2 vols. pp. 396. 522.—Plates.

Fondamenti di Patalogia Analitica. Di Maurizio Buffalini. 2 vol. 8vo. Pavia, 1820.

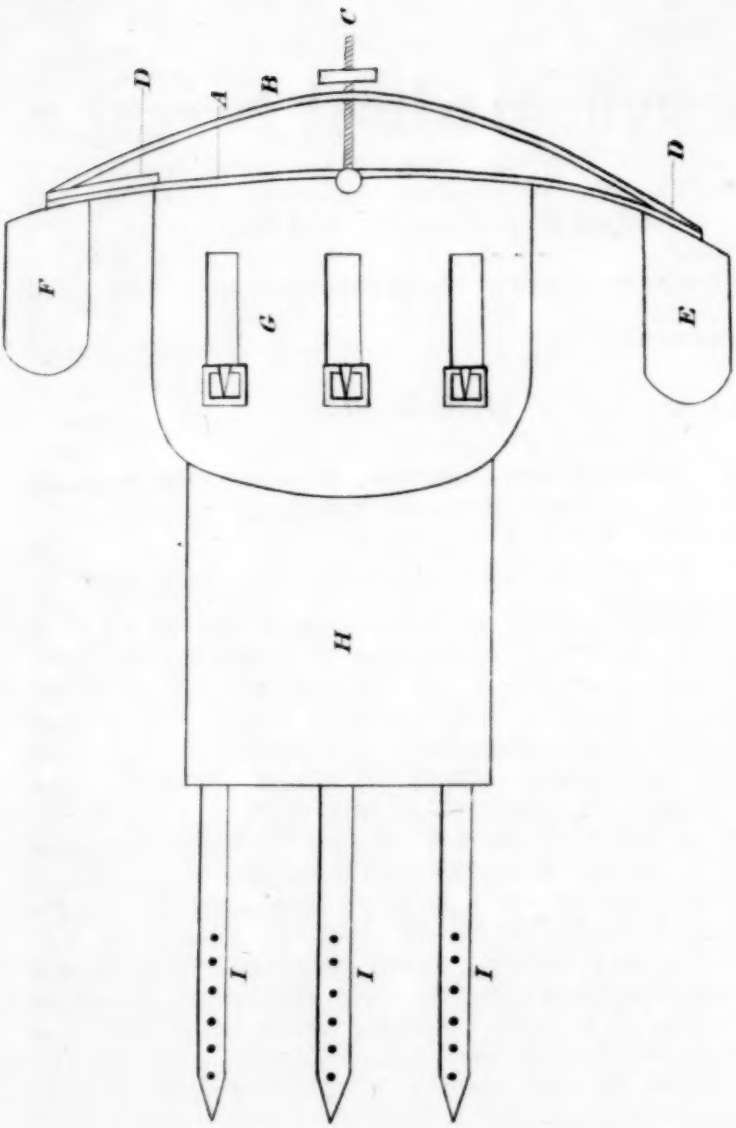
Discorsi due sulla Medicina. Del Signor A. Chiappa. 8vo. 1821.

Paletta, J. B. Exercitationes Pathologicæ. 4to. Mediol, 1820. £1 10*s.*

PREPARING FOR PUBLICATION.

In the Press, and speedily will be published, a Translation of Laennec's work on the Diseases of the Chest, newly arranged and condensed into one volume. By John Forbes, M. D. Penzance, Cornwall.

Dr. J. C. Prichard has just ready for publication, A Treatise on Diseases of the Nervous System. Vol. I. Comprising Convulsive and Maniacal Affections. The design of the work is to illustrate, by numerous cases of Epilepsy, Mania, Chorea, and the different forms of Paralysis, the connexion between affections of this class, and a variety of Disorders of the Natural Functions.



For the Journal of Foreign Medical Scienc & Literature